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Virginia MEDICAL MONTHLY

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Annual Meeting
Medical Society of Virginia
Old Point Comfort,
October 9-12, 1949

February, 1949

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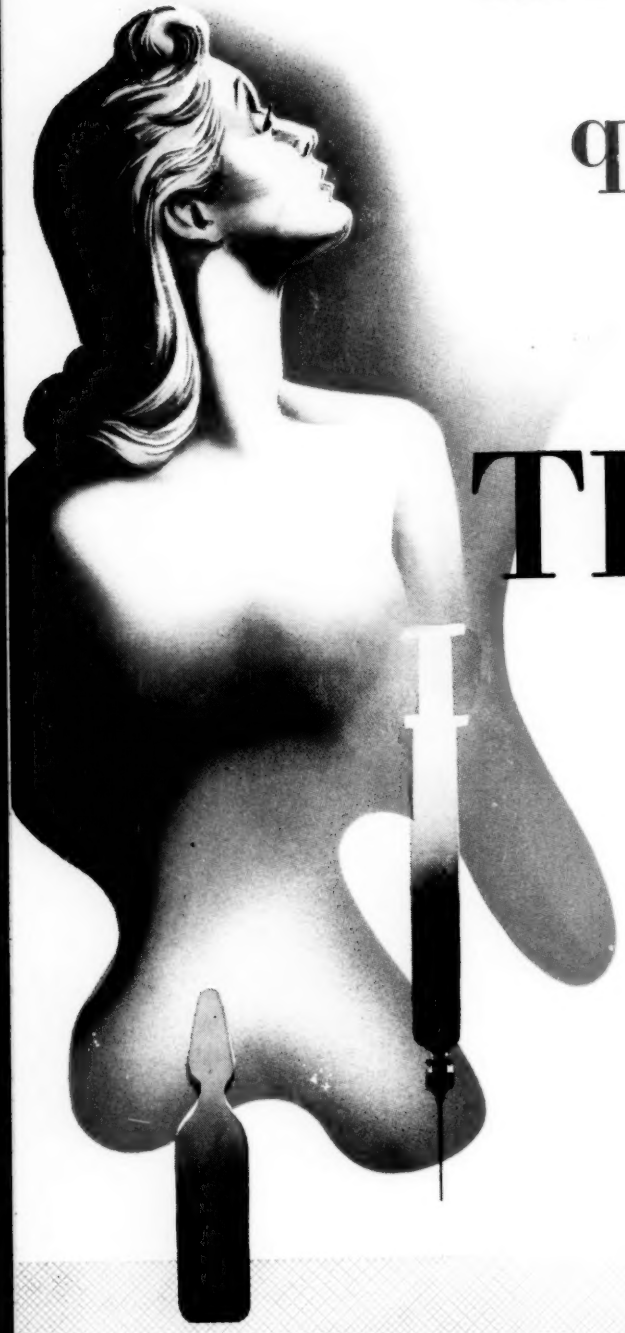

the exceptional qualifications of THEELIN for estrogen therapy

PARKE, DAVIS

Virginia Medical Monthly

Vol. 76, No. 2
WHOLE No. 1160

RICHMOND, VA., FEBRUARY, 1949

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GUEST EDITORIAL

Progress in American Medicine

PROGRESS in American medicine is an achievement which we, as doctors, are proud to relate to the general public.

Yet, for some time now, many stories reaching lay readers have dealt with isolated cases of distress, indicting the medical profession, along with articles based on glib promises of social planners.

During the ensuing year, the medical profession must concentrate its efforts on one problem: to tell the American people about the many contributions which the medical profession has made to alleviate disease, preserve life and postpone death. Our story must stress the importance of our present system of voluntary care and present the true facts about medical care and health protection.

The House of Delegates of the American Medical Association, at the Interim Session in St. Louis, fully recognized these problems by creating a means for carrying on a nationwide health education program. To finance this program an assessment of $25 was made on each member of the American Medical Association. Members of the American Medical Association do not pay dues. If they desire to become Fellows of the Scientific Assembly they make application and pay $12 a year dues, which include a subscription to The Journal. This hardly pays for the paper and printing; notwithstanding the fact that the doctor receives the best medical periodical published anywhere in the world.

In 1947, the expenses of the Association exceeded income. For that reason dues of Fellows were raised from $8 to $12. However, even higher costs have kept apace with this raise and the Association may show a net loss for 1948.

The medical profession as a whole is of the firm opinion that government control of medicine would lower the standards of medical care in the United States, and is so sincere in this belief that it feels everything possible should be done to prevent such control from being thrust upon us.

A coordinating committee has been formed to help solve many of the problems which we face, and it is enlisting the support of every physician. This committee is composed of Dr. E. L. Henderson, chairman, Dr. Edward S. Hamilton, Dr. Gunnar Gundersen, Dr. Walter B. Martin, Dr. Louis H. Bauer, Dr. John W. Cline, Dr. William Bates, Dr. R. B. Robins, Dr. R. L. Sensenich, and Dr. George F. Lull.

GEORGE F. LULL, M.D.

EDITOR'S NOTE.—Dr. Lull is secretary and general manager of the American Medical Association.

RECENT ADVANCES IN ANTIBIOTIC AND SULFONAMIDE THERAPY*

HARRISON F. FLIPPIN, M.D.,
and
WILLIAM P. BOGER, M.D.,
Philadelphia, Pennsylvania.

Within recent months a number of new antibiotics have become available for clinical trial and there is reason to believe that within the very near future we will have specific therapeutic agents for both virus and rickettsial diseases. From the standpoint of the practicing physician, however, the most significant contributions have been concerned with the original antibiotic, penicillin.

The availability of penicillin at a reasonable cost has lifted, to a great extent, restrictions that may have existed in the past regarding the daily, or total, requirement of penicillin. This is a fortunate circumstance, but it should not lead to the practice of using wastefully large doses when they are not needed or to employing penicillin when it is not indicated. Heralded as a comparatively nontoxic drug, penicillin continues to give remarkably few serious untoward manifestations. But, those who have encountered cases showing severe sensitizations realize the potentialties of serious toxic effects associated with its use.

The widespread use of penicillin on the one hand has demanded that investigations be directed towards supplying the drug in forms that permit modification of dose schedules to meet any occasion, and, on the other, has contributed to a better understanding of the mode of action of penicillin. Some of the unorthodox dose schedules, employed by necessity, or for reasons of convenience, have demonstrated that the therapeutic results obtained have, in many instances, been comparable to those achieved by more conventional forms of therapy. It is the purpose of this paper to correlate some of the facts concerning the available forms of penicillin and to discuss certain observations regarding the action of penicillin, thereby justifying some of the current trends towards modification of penicillin dosage schedules and the employment of combinations of antibiotics, and/or sulfonamides.

Plasma concentrations of penicillin that might result following any given dose (a dose-time response curve) are presented schematically (Chart I). The resulting concentration might fall into the

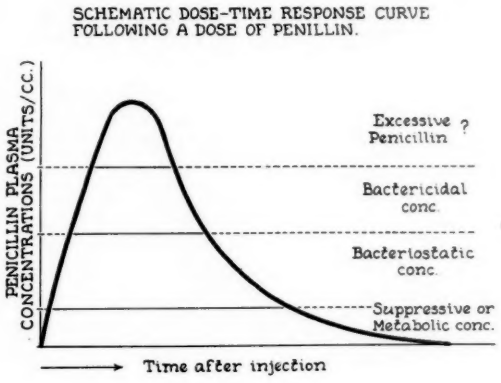

CHART I

designated four ranges depending upon the specific organism under treatment; penicillin may be bactericidal, actually destroying the organisms, or bacteriostatic, preventing the multiplication of the organisms, or, as the concentration falls still further, the bacteria may be damaged by the interference of penicillin with the enzyme systems of the organisms and, although the organisms are able to multiply, their rate of multiplication is less than normal[1]. One of the most interesting examples of the interference of penicillin with bacterial metabolism is the observation of the reversal of the gram stain and the ability to restore gram-positivity after it has been lost under the influence of penicillin, by the addition of various enzymes[2]. The duration of this adverse metabolic phase is the time required for the organisms to regain their normal rate of multiplication once penicillin has fallen below a bacteriostatic level. The duration of action of a dose of penicillin, which produces bactericidal, bacteriostatic, or adverse metabolic effect might well be designated as the total penicillin effect time upon the organism under treatment. The specific total penicillin effect times of various or-

*From the Medical Department of the Philadelphia General Hospital, Philadelphia.

Presented by invitation before the meeting of the Medical Society of Virginia, Richmond, October 20, 1948.

ganisms are as yet poorly defined, particularly in patients during active infection.

It may be observed that concentrations in excess of bactericidal ones have been indicated. It is contended by some[3] that penicillin therapy that gives rise to such concentrations is in effect wasted and that a zone phenomenon may actually result if the optimal bactericidal concentrations are exceeded. This concept, arising from experimental investigations, awaits clinical confirmation. It seems worth while to point out, however, that about the only way to achieve optimally bactericidal concentrations for an appreciable length of time without exceeding them is to administer penicillin by continuous infusion which is, in itself, an extravagant usage of penicillin, by reason of the rapidity of renal excretion of the antibiotic. In this connection, it has been suggested that intermittent treatment might be more effective than continuous treatment[4]. This suggestion is based on the observation that some bacteria are killed by penicillin only while they are multiplying. Hence, a continuously maintained level of penicillin may suffice to hold an infection in abeyance by inhibiting the growth of bacteria, but fail to kill those organisms which are present in a physiologically inactive phase. These hypothetical resting organisms, persisters, may become vulnerable to the action of penicillin only if they are permitted to resume multiplication. It is also of interest that therapy giving a continuous bacteriostatic effect results in less antibody formation than if therapy is intermittent[5], in which case opportunity is afforded for some multiplication of the bacterial population.

From the foregoing, it is natural to inquire whether it is more desirable to achieve transitory bactericidal levels of penicillin intermittently, or to maintain concentrations that may approximate the bactericidal range, but certainly fall within the bacteriostatic range at all times during therapy. There seems to be no final answer to the question at this time, but a consideration of the effects of penicillin upon a bacterial population producing disease suggests that both approaches to treatment may have merit.

Some understanding of the success following treatment with widely separated penicillin injections can be gained from the examination of the three phases of penicillin activity (Chart II) in terms of the effect on bacterial population producing the infection. Regardless of the size of any single dose of penicillin, it is doubtful whether the entire population of bacteria can be destroyed by bactericidal action alone, and, although the patient may recover from the infection without additional therapy, it cannot be presumed that the initial therapy by itself effected cure. When this sequence of events is observed, it implies that the infecting bacterial population has been so drastically re-

DEATH-GROWTH CYCLE OF BACTERIAL POPULATION UNDER THE EFFECT OF PENICILLIN.

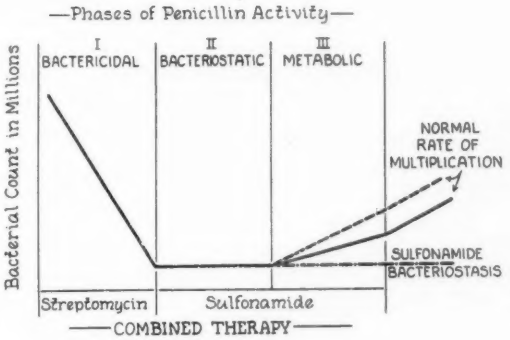

CHART II

duced and the surviving organisms so damaged, and therefore more vulnerable, that body defense mechanisms are able to control the infection. As yet, we are not convinced that many infections can be treated according to this pattern, although large experience has demonstrated that gonorrhea can be so treated[6] and in the treatment of pneumococcal infections, certain observations have been made which would support the above thesis[7]. It should be emphasized, however, that both gonococci and pneumococci are highly susceptible to penicillin and penicillin concentrations that escape detection by ordinary methods of penicillin assay may be bactericidal, bacteriostatic, and adversely metabolic in effect, accounting, therefore, for the successful treatment of these infections in some cases without attaining detectable concentrations of antibiotic in the plasma. It is pertinent to mention that most of our penicillin thinking is predicated upon experience with infections extremely susceptible to therapy with this agent, i.e., gonorrhea, pneumonia, and syphilis. There are broader considerations concerning the use of penicillin than are encompassed by experience in the treatment of these susceptible infections.

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Plasma concentrations of penicillin were omitted from Chart I advisedly, as we wish to emphasize the importance of determining the sensitivity of the invading organism before instituting therapy. Although a level of 0.03 units per c.c. of plasma has been considered as a therapeutic concentration and is effective in many types of infections, one may enjoy a false sense of security in relying on this concentration for the treatment of all types of infections susceptible to penicillin. Furthermore, when treating infections extremely sensitive to penicillin, such as pneumococci, gonococci, and the spirochetes of syphilis, this concentration is actually higher than is needed. The measurement of penicillin plasma concentrations has been called into question, indeed there are those who contend that they are of no significance. It is true that tissue levels of penicillin may actually be higher than those existing in the circulating blood and that significant amounts of penicillin are excreted in the urine long after the amounts in the blood have fallen below the levels of detection, so some questions regarding the significance of plasma concentrations may be asked. These observations clearly indicate that the amounts of penicillin measured in the plasma are only an indirect evidence as to the amount of penicillin being delivered at the actual focus of infection, but do not invalidate the importance of plasma concentrations. The fact seems to be that many infections are so susceptible to penicillin therapy that little attention need be paid to penicillin plasma concentrations or in vitro testing of organism sensitivity because any of the usual dosage schedules will effectively control the infection. Only in the treatment of more resistant infections can the significance of penicillin plasma concentrations be more clearly interpreted in terms of bactericidal, bacteriostatic, and adverse metabolic effects.

It must be emphasized that the actual duration of these three phases of penicillin activity depends largely on the sensitivity of the offending organism, or its relative resistance to the action of penicillin. It would appear that organisms are more vulnerable to the effects of penicillin during multiplication. Therefore, if the death-growth cycle (Chart II) of a particular organism is short, it will be necessary to attain bactericidal penicillin concentrations fairly frequently. On the other hand, if the death-growth cycle is long (there is indication that this is true of the treponema pallidum), the attainment of bactericidal levels at more widely separated intervals will be effective. In addition to the immediate bactericidal action of a given dose of penicillin, a bacteriostatic one is maintained for a varying interval of time, during which the surviving organisms do not multiply. As penicillin concentrations decline toward zero, the organisms begin to multiply, at first at a rate slower than normal, but returning to a normal rate of multiplication when penicillin completely disappears from the body. If the body has not gained control of the infection by this time and no further treatment is given, the infection will recur. If, however, an additional penicillin injection is administered, a bactericidal effect will again be exerted and on a bacterial population that has been reduced by previous therapy. Each repetition of the penicillin dose will further reduce the total number of invading bacteria and the bactericidal effect will be greatest if administered while bacteria are multiplying. Hence, optimal penicillin therapy would be initiated with a large enough dose of antibiotic to give a maximal bactericidal effect and subsequent doses should be administered at intervals designed to attack the surviving organisms during a phase of multiplication, but before the bacterial population has begun to multiply at a rate approaching normal.

Streptomycin and sulfonamide therapy may be fitted into this pattern. Streptomycin exerts a predominantly bactericidal action. These organisms that survive the first streptomycin onslaught rapidly give rise to a resistant bacterial population and the rapidity with which infections lose their susceptibility to streptomycin therapy represents the most serious limitation of therapy with this agent. Experience is showing that the time to attain the greatest benefit from streptomycin is the first time it is used and it should be employed in full dosage. The rapidity with which resistance to streptomycin is developed precludes a schedule of step-wise increases. Although there is ample evidence to show that many bacteria become resistant to streptomycin, the same cannot be said regarding penicillin. Reexamination of the problem calls into grave question the existence of resistant strains of gonococci and pneumococci, but has established that staphylococci and streptococci do acquire resistance. It seems highly probable that many reported instances of resistance to penicillin therapy represent inade-

quate therapy, rather than the development of truly resistant strains of organisms.

Most of the evidence concerning the synergistic or additive effect of the antibiotics and sulfonamides has come from the laboratory[8], but one can see definite possibilities for the clinical application of combined antibiotic and/or sulfonamide therapy. The additive bactericidal effect of penicillin and streptomycin can be employed to reduce the bacterial population at the beginning of therapy to a degree not possible with either drug alone, thereby leaving fewer bacteria to multiply and continue the infection. Sulfonamides exert a primarily bacteriostatic effect so that it appears entirely feasible to reduce the bacterial population to the lowest possible level with bactericidal agents and then maintain bacteriostasis with sulfonamides so that subsequent doses of the bactericidal agent will further reduce the number of surviving organisms. In the treatment of the more severe infections that are known to respond to several agents, a combination of the most effective drugs is definitely indicated. Already there have been interesting examples of successful therapy with drug combinations, streptomycin-sulfadiazine for the therapy of Brucellosis, penicillin-bacitracin for the treatment of rabbit syphilis, penicillin-promin, penicillin-para-aminosalicylic acid for the therapy of tuberculosis.

Information regarding the phases of penicillin activity can be obtained from in vitro studies but it is much more difficult to do so in the clinic. Nevertheless, we would like to suggest that some of the newer schedules of therapy as well as the more established ones can be rationalized in terms of the above phases of penicillin activity. Immediately following the administration of penicillin (it is assumed that the dose employed is adequate for the treatment of the infection under consideration), bactericidal concentrations are obtained and it is probable that with the intermittent administration every two to three hours, the plasma concentrations of antibiotic are maintained within bactericidal and bacteriostatic ranges, with little advantage being taken of the suppressive or metabolic penicillin effect, a period of time during which bacteria may multiply but at a slower than normal rate. It is doubtful if the organisms ever have the opportunity to multiply during therapy that calls for penicillin every two to three hours. It is interesting in this connection to speculate whether the complete suppression of bacterial growth results in the development of fewer antibodies and consequently less immunity of the host than if at some period during therapy a few organisms multiply to a limited extent during short intervals when penicillin concentrations fall below a bacteriostatic level. Pertinent to this discussion is the observation that the maintenance of continuous antibacterial penicillin concentrations results in the formation of less antistreptolysin than when antibacterial concentrations are maintained for only a fraction of the day.[5]

Only recently have dose schedules been proposed that take full advantage of the bactericidal and bacteriostatic phases and to a limited extent of the adverse metabolic or suppressive phase of penicillin action. Most of us have unwittingly employed a modification of this newest schedule of therapy when we have omitted the night doses of our patients purely for convenience. In some hospitals, the trend toward injections at more widely separated intervals was the result of acute nursing shortages. Whatever the actual origins of this form of treatment, larger single doses (100,000 to 300,000 units) of crystalline penicillin in aqueous solution at intervals of every 8 to 12 hours are currently being advocated. Patients so treated respond quite as well as those receiving more conventional therapy.

Actually, doses of this magnitude furnish concentrations of penicillin in the plasma that are in the bactericidal range for pneumococci, gonococci and many streptococci for the greater part, if not the whole of the interval between injections. Immediately and shortly after the injection of such a dose, however, the minimal bactericidal and bacteriostatic levels are exceeded by a hundred or more times; this being so, it is hard to reconcile the excellent therapeutic results with the concept that excessive concentrations of penicillin may be detrimental[3].

It has been remarked earlier in this paper that there is a tendency to overlook in the average discussion of penicillin therapy the fact that there are some infections susceptible to penicillin that nevertheless require doses large enough to insure plasma and tissue concentrations measured in whole units of penicillin per c.c., as opposed to the ordinary infections which constitute the majority of those treated and that require concentrations approximating 0.03 units per c.c. Depot, or repository, penicillins appear to be suited to the treatment of these

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latter infections[9]. These preparations offset the rapid excretion of penicillin by the kidneys, by slowing the rate of absorption from the site of their injection. Penicillin suspended in peanut oil and beeswax, was the prototype of this type of preparation, but while it was effective in prolonging penicillin concentrations, the pain and sterile abscesses accompanying its administration left much to be desired. Following the original success of the vehicle of beeswax and oil in retarding penicillin absorption, attention was turned to the salts of penicillin, relatively insoluble in water, in the hope of still further prolonging the concentrations resulting from single injection. Procaine penicillin has proved to be the most serviceable of these salts and is currently being made available in a number of vehicles, water, vegetable oil alone, and aluminum mono-stearate and peanut oil gel.

Admitting the necessity of interpreting plasma concentrations of penicillin in the light of a number of variables, the plasma concentrations following 300,000 units of the currently available penicillin preparations may be compared in terms of their ability to maintain over longer or shorter periods a concentration above 0.03 units/c.c. Crystalline penicillin in aqueous solution is rapidly absorbed from the site of the injection and likewise is rapidly excreted by the kidneys, so that penicillin can be demonstrated in the plasma for approximately 8 to 12 hours. Procaine penicillin, suspended in water or in oil, gives comparable plasma penicillin concentrations in the majority of patients for 24 to 48 hours. A possible advantage of the aqueous suspension is freedom from oil, which in some patients may give rise to allergic manifestations or local irritative phenomena. Following the administration of procaine penicillin suspended in aluminum mono-stearate and peanut oil gel, levels are sustained for approximately 96 hours. At this point, it is well to re-emphasize that the therapeutically effective dose of penicillin is largely dependent upon the sensitivity of the offending organism to the antibiotic, a fact that has been obscured by the over attention to 0.03 unit per c.c. as a therapeutically significant concentration. While preliminary studies on hospitalized patients treated with newer, long-acting penicillin dosage forms have demonstrated the adequacy of single injection treatment of bacterial pneumonias, this form of therapy is not as yet advocated for general use. Until such time when a larger series of cases has been collected, it seems advisable to recommend that injections be repeated at intervals of 24 to 48 hours. This recommendation is made primarily in the interest of patients being treated at home and are not under constant observation.

In contrast to those readily susceptible infections, requiring only small concentrations of penicillin, we have those so-called resistant types of infections which require larger amounts of the antibiotic in the tissues. The extreme rapidity with which penicillin is excreted by the renal tubules, makes difficult the maintenance of the high concentration of the antibiotic. So, it is natural that one approach to the problem has been the inhibition of the tubular excretion of penicillin. Diodrast[10] and para-aminohippurate[11], commonly employed to measure tubular excretory functions, have been found to inhibit the excretion of penicillin. More recently, caronamide[12] has been found to behave similarly and this drug has the advantage of being effective when administered orally. Caronamide by mouth, in doses of 2 to 3 gm. every 3 to 4 hours, will elevate the concentration of penicillin in the plasma from two to seven-fold[13]. Obviously, any desired concentration of penicillin can be achieved by the simple expedient of using enough penicillin to obtain it, but when the desired penicillin concentration requires more than one million units of penicillin daily, it is both reasonable and economical to employ caronamide. The incidence of toxicity of caronamide in 1913 cases has been negligible, except for nausea and vomiting, which occurs in 14 per cent of cases[14].

Chemical and therapeutic studies of sulfonamide combinations[15] have demonstrated that the total amount of sulfonamide that can be held in solution in urine is substantially increased when two or more of these substances are administered simultaneously. Thus, it is possible to lessen the hazards of urinary tract complications due to sulfonamide crystals or calculi. Alkaline adjuvants, such as sodium bicarbonate must be given in relatively large amounts in combination with a single sulfonamide in order to decrease the incidence of renal complications of this type. The same reduction in crystalluria, with hematuria and calculus formation, can be accomplished by the use of sulfonamide mixtures without the necessity of administering adjuvants.

In the past, the opinion has been prevalent, particularly among laboratory investigators, that combinations of sulfonamide mixtures offer no advantage from the purely chemotherapeutic standpoint over single compounds and some held the view that mixtures would be less effective. In a recent study, however, a combination of sulfonamides (sulfadiazine-sulfamerazine) has proven to be equal to sulfadiazine alone with respect to therapeutic results achieved and superior to sulfadiazine with regard to urinary toxicity[16].

Trials of triple sulfonamide combinations, containing sulfathiazole, sulfamethazine, or sulfapyrazine as a third component in a mixture of sulfadiazine and sulfamerazine, have indicated that the occurrence of crystalluria can be decreased to negligible proportions. The superiority of the triple combinations suggests that they may eventually replace the double combinations[17]. At this time, there seems to be a difference of opinion as to what the third sulfonamide should be in a mixture. It would appear that there is an advantage to limiting the choice to compounds of closely similar structure to minimize the potentialities of drug sensitization. The three pyrimidine derivatives, sulfadiazine, sulfamerazine, and sulfamethazine have proven to be of equal therapeutic effectiveness and to have a low incidence of toxicity. They are very similar in structure, potency, and pharmacologic properties and have been demonstrated to be safe and effective clinically. Hence, it would seem appropriate to employ sulfamethazine or sulfapyrizine as the third sulfonamide in combination with sulfadiazine and sulfamerazine, as opposed to sulfathiazole as the third component of a mixture. Sulfathiazole is excluded from consideration because of its different distribution in its body, its more rapid renal clearance, and the low solubility of its acetylated derivative. Sulfathiazole is recognized as the worst offender in the matter of renal toxicity among the sulfonamides in common use.

SUMMARY

The availability of penicillin in a variety of dosage forms and an increasing knowledge of the mode of action of the antibiotic permit greater exactness in the definition of schedules of treatment, in terms of the requirements of specific infections. Determination of the in vitro sensitivity of the invading organism constitutes an important guide to purposeful therapy. When the requirements for the control of an infection are great and whole units of penicillin per c.c. are required, caronamide, a compound capable of inhibiting the renal excretion of penicillin, is a useful adjuvant to therapy. When the requirements are in a lower range (below 1.0 units per c.c.), intervals of 8 to 12 hours between injections of crystalline penicillin in aqueous solution are permissible for the treatment of many infections. Similarly, depot penicillins offer the advantage to patient and physician of reducing the number of injections without loss of therapeutic effectiveness. Reliance on plasma concentrations following single injections of depot penicillins for periods of time ranging from 24 to 96 hours must await further evaluation.

The combined use of the antibiotics and sulfonamides offers definite possibilities for more rapid and more effective control of bacterial infections. Whether these advances are due to true synergism, or to summation of effects is not established, but it seems reasonable to anticipate that the future will see an increasing use of combinations of antibiotic and other chemotherapeutic agents.

There is no doubt that sulfonamide mixtures, dual or triple, will reduce renal complications without reducing therapeutic effectiveness. However, the question of whether multiple sulfonamides influence favorably or unfavorably systemic toxicity is as yet unsettled.

Finally, it must be stressed that the antibiotics and the sulfonamides should not be used indiscriminately or as a substitute for diagnostic acumen. If the infection warrants their use, it should be remembered that, despite their remarkable therapeutic effects, these agents should not be used to the exclusion or neglect of other established forms of therapy.

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255 South Seventeenth Street.

Bibliotheca Obstetrica

RUEFF, JACOB (1500-1558): De conceptu et generatione hominis, et iis quae circa haec potissimum consyderantur, libri sex, congesti opera Jac. Rueff, chirurgi Tigurini. —Tiguri Christophorus Froschauer, 1554. 5 1, 105 1. with many woodcuts, villum. 21 cm.

——: De conceptu et generatione hominis . . . *Francoforti Moenus* 1580. 101 p. illus. 19 cm. (M.L.)

——: Hebammen Buch. Daraus man alle Heimligkeit dess weiblichen Geschlechts erlehrenen, welcherley gestalt der Mensch in Mutter Leib empfangen, zunimpt und geboren wirdt. Auch wie man allerley Kranckheit, die sich leichtlich mit den Kindbetterin zutragen, mit köstlicher Artzeney vorkomen und helffen könne. Alles auss eygentlicher Erfahrung dess weitberühmpten Jacob Rüffen, Stattartzes zu Zürych vor dieser zeit an Tag geben. Jetzundt aber von newen gebessert, mit schönen Figuren geziert. Sampt einem nützlichen Anhang, von Cur und Pflegung der newgebornen Kindtlein. Gestrückt zu Franckfort am Mayn im Jar 1538. 4 1., 259 (wrongly numb.249) pp. 2 leaves. Title printed in red and black. With woodcut on title and many fine woodcuts by Jost Amman in the text. 19.8 cm. 8.

——: T'Boeck van de vroetwifjs . . . *Amsterlredam,* C. *Claess* 1591. 81 p. woodcuts 18 cm. (M.L.)

——: De conceptione et generatione hominis . . . in Gynaeciorum, ed—by Israel Spach, Strassburg. 1597.

Besides the above which are in the Miller Library and in my possession, Siebold lists the following editions:

Ein schön lustig Trostbüchle von den empfengkunssen und geburten der menchen . . . Zurych 1554.

Hebammenbuch . . . Franckfort a. M. 1580. 1600.

Two Latin editions Francof. 1580, 1587 and a Dutch edition, Amsterd. 1670. The author was town physician and professor of medicine in Zurich. His is the third textbook on obstetrics. Garrison speaks of his book as a midwifery of sterling character. Many of his illustrations are found in Albertus Magnus' (or Henry of Saxony's) *De secratis mulierum* and his pictures of monsters are also to be found in Paré.

ACUTE RESPIRATORY INFECTIONS*

HARVEY C. BROWNLEY, M.D.,
Lynchburg, Virginia.

An attitude of inevitability has long existed towards infection of the respiratory tract. Perhaps this is not without justification, since everyone can reasonably anticipate one or more infections with varying degrees of severity and incapacity annually. The economic loss is staggering, and the many investigations of these conditions have yielded only modest results. At this time there is still much to be desired in knowledge of, and in the prevention and treatment of, respiratory diseases. In recent years, however, acute respiratory infections have been under intensive study by many groups. The recent war occasioned an urgent need for such information and the large numbers of men in the Armed Forces afforded an unequalled opportunity for these studies. A consideration of some of these findings is undertaken at this time.

MINOR RESPIRATORY INFECTIONS

This group represents the commonest and by far the largest number of respiratory infections. Their incidence is distinctly greater during the colder months of the year. They are numerous in late September or October, mid-winter, January, and February and often in the spring. It is suggested that other factors than the weather are responsible for this periodicity which has been found similar in regions of great climatic difference. In the fall there is frequently a predominance of coryzal infections or common colds, while in the winter months "grippal" infections are commonly observed.

It has recently been observed that nasopharyngeal cultures from individuals so infected reveal chiefly the common inhabitants of the nasopharynx and are indistinguishable from cultures obtained from healthy individuals. That there is an infectious agent responsible is generally accepted. The presence of an ultra microscopic or filtrable agent in nasal secretions has been suggested by many. Dochez and his co-workers in 1931 reported cultivation of an agent on embryonic tissues which they thought should be classified as a filtrable virus.

In a recent study of this group of infections by The Commission on Acute Respiratory Diseases[1] filtered washings from the throats of individuals believed to be suffering from different types of minor respiratory infections were obtained. Briefly, the types were (1) A severe febrile illness with sore throat, hoarseness and cough—designated acute respiratory disease. (2) A coryzal illness with fever and constitutional symptoms. (3) Coryza without fever and (4) A severe febrile illness, with constitutional symptoms, rales in the lung, but negative x-ray, simulating "bronchitis resembling atypical pneumonia". Under carefully controlled conditions, the filtered washings of these four groups of cases were administered to four groups of volunteers, each group receiving one of the four types of inoculum. A surprisingly high percentage of infections resulted in each of the groups, with the exception of the group receiving the inoculum from the "bronchitis resembling atypical pneumonia group" and these results were inconclusive.

Two distinct types of infection resulted from the inoculation of the other three groups. Individuals receiving inoculum from the case of acute respiratory disease predominantly developed symptoms on the fifth or sixth day. They revealed an onset with dry or sore throat for a period of 24 to 48 hours with mild inflammation of the palate or pharynx. Nasal obstruction and sneezing were present but minimal. There was a febrile response and hoarseness and cough were observed. In the majority of cases the illness lasted only four days, though there were instances of six and twelve days.

Volunteer groups receiving inoculum from the coryza with febrile reaction and coryza without fever revealed another type of illness. The onset was abrupt, usually within 24 to 48 hours, with sneezing, nasal obstruction, coryza and mild constitutional symptoms. The duration of this infection was somewhat longer. Thus, two clearly differentiated illnesses, one with an incubation period of 5 or 6 days with sore throat, hoarseness, cough and constitutional symptoms, or acute respiratory disease, and another with an incubation period of 24 to 48 hours with abrupt onset, nasal

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obstruction, and coryza of "common cold" like symptoms occurred. This suggests that two filtrable agents,. presumably viruses, may induce minor respiratory illness.

Further observations[2] three weeks later consisted of re-inoculation of these groups with the same inoculum. It is noteworthy that those individuals receiving the inoculum of acute respiratory disease at this time did not again develop the illness. On the other hand, those previously infected with the inoculum of coryzal like illness, again at this time developed an illness in one or two days with coryzal symptoms.

Again 25 days later those originally receiving inoculum of acute respiratory disease were given inoculum of coryzal infection and developed the coryzal illness. Likewise, those having previously received inoculum of coryzal infection were given the inoculum of acute respiratory disease and developed this disease, thereby indicating a lack of cross immunity between the two illnesses. Finally, these individuals who had suffered both types of infection were inoculated with the filtered washings from a case of atypical pneumonia. Two individuals who had previously had both minor respiratory illnesses developed atypical pneumonia. From this it is seen that minor respiratory infection does not produce immunity to primary atypical pneumonia.

Therefore, two types of minor respiratory infection, one with an incubation period of 5 or 6 days with fever, sore throat, cough and hoarseness apparently affording some protection against reinfection; another characterized by a 24 to 48 hour incubation period with an abrupt onset of a coryzal illness, without apparent immunity to reinfection, are disclosed. They appear to be two distinct infections lacking in immunity against each other. Neither infection renders an immunity to primary atypical pneumonia.

TONSILLITIS AND PHARYNGITIS

It has long been a clinical impression that instances of exudative tonsillitis or pharyngitis were most likely due to infection by the beta hemolytic streptococcus. Cases of exudative tonsillitis and pharyngitis occurring at Fort Bragg were also studied by The Commission on Acute Respiratory Diseases. That there are fairly marked differences in the geographic distribution of the beta hemolytic streptococcus has been adequately demonstrated by Van Ravenswaay.[3] Therefore, observations made in an area of such close proximity and similarity of climate to our own should be helpful.

This group studied 3026 patients hospitalized with respiratory infections of which 465, or a total of six per cent, were cases of proven beta hemolytic streptococcal infection.[4] The bacteriological procedures employed consisted of cultures obtained from the tonsillar or pharyngeal exudate. Colonies on agar plate revealing beta hemolysis were grouped and typed according to the method of Lancefield. Serological proof of the infection was demonstrated by a rise in antistreptolysin and antifibrinolysin titres of serum obtained during the third and eighth week of convalescence. The presence of a positive culture of beta hemolytic streptococcus from the throat unaccompanied by a rise in antibody titre was interpreted as representing a carrier state, but not infection by this organism. Thus, serological evidence of infection was a requisite for establishing the diagnosis. Lancefield group A beta hemolytic streptococcus organisms as a group are chiefly responsible for infections in man and were isolated alone or in combination in 90 per cent of the streptococcal infections, while other groups, chiefly groups C and G, comprised the remaining ten per cent of infections. It is also of interest that healthy carrier rates for all groups of beta hemolytic streptococci varied between 8.0 and 9.7 per cent, while in patients hospitalized with respiratory disease the rate was 13.9 per cent.

Approximately ten percent of all hospitalized cases of respiratory infection were found to suffer from exudative tonsillitis and pharyngitis. One hundred and sixteen such cases were studied.[5] In 25 per cent of these cases cultures yielded beta hemolytic streptococci and there was an accompanying rise in streptococcus antibodies in convalescent serum, compatible with beta hemolytic streptococcal infection of the throat. Another 25 per cent yielded beta hemolytic streptococci on culture, but there was no antibody response in the convalescent serum, suggesting a carrier state only. In 50 per cent of cases streptococci were not found on culture. Thus, only one-fourth of the series were serologically proven cases of streptococcal infection. In the remaining one-half of cases there was little evidence that bacteria were responsible for the in-

fection. The etiology of non-streptococcal exudative tonsillitis and pharyngitis is not understood.[6] Cultures revealed the common organisms as pneumococci, staphylococci, hemophilus influenza and hemophilus hemolyticus. The frequency of these organisms was the same in this group as in well soldiers and those suffering undifferentiated respiratory disease. This type of sore throat has occurred frequently in the course of epidemic undifferentiated acute respiratory disease, and may well be a variant of this condition. It has been reported in association with primary atypical pneumonia.[7]

The clinical features of the two groups are instructive. The onset in the streptococcal group is more sudden, usually within a period of 24 hours. Constitutional symptoms of chilliness, headache, malaise, and feverishness are common to both groups, though slightly more marked in the streptococcal than in the non-streptococcal infections. Sore throat was of equal frequency in both groups, though occurring earlier in cases of streptococcal infection. In the non-streptococcal cases the tendency to involve the lower respiratory tract was distinctly greater, and cough, hoarseness, sputum, and chest pain were much more common than in the streptococcal infections.

Physical findings reveal even more striking differences. Patients suffering with streptococcal infection appear more severely ill. In this group the average temperature is 102.5 degrees F., while in the non-streptococcal group it averages 101.7 degrees F. The throat in streptococcal infection is diffusely red with involvement of the tonsils, palate, pharynx, and in most instances there is also edema of these tissues. The exudate due to streptococci is usually yellow, large in extent and confluent. There are associated enlarged tender lymph glands. Non-streptococcic exudate on the contrary is usually gray or white in color, pin-head size, and often over enlarged follicles of lymphoid tissue on the post pharynx. In the presence of tonsils both types of exudate occur, whereas, in cases having had tonsillectomy the pin-head size is more common. In streptococcal infection the white blood count averages 13,427 with 79 per cent polymorphonuclear cells, while in the non-streptococcal group the average count was 9,024 with 67 per cent polymorphonuclear cells. Usually in both instances the illnesses are of short duration, the temperature returning to normal within four days.

The value of penicillin and the sulfonamides in beta hemolytic streptococcal infections merits further study. Finland[8] and co-workers demonstrated that in scarlet fever intramuscular penicillin for seven days was required to permanently clear the throat of streptococci. Septic complications were controlled, while the toxic and eruptive phase were uninfluenced. Sulfonamides suppressed but did not eradicate streptococci from the throat. Spink[9] and his co-workers were not favorably impressed with the effectiveness of sulfadiazine in altering the course, except in very ill cases, or eradicating beta hemolytic streptococci from the throat in streptococcal tonsillitis. Total doses of 200,000 units of pencillin administered intramuscularly in cases of severe streptococcal tonsillitis reduced the severity and in instances appeared to shorten the course. However, they observed that in order to eliminate beta hemolytic streptococci from the throat for more than a temporary period the dosage of penicillin required was from 500,000 to 1,000,000 units. Subsequent development of rheumatic fever in patients with group A beta hemolytic tonsillitis or scarlet fever was not prevented by penicillin. Rantz[10] and co-workers stress the seriousness of streptococcic sore throat in young adults in which arthritis, fever and carditis, which may ultimately be followed by chronic valvular disease, are the most common sequellae. At this time, treatment of the non-streptococcic tonsillitis and pharyngitis would appear to be symptomatic.

PNEUMONIA

In recent years there has appeared among the respiratory diseases, both in civilian and in military practices, what has been described as "one of the most peculiar of the infectious diseases of man."[11] Many names have been applied to this condition but perhaps it is best known as virus pneumonia and atypical pneumonia.

That this clinical picture may be produced by a variety of agents including bacteria, fungi, rickettsia and viruses is well established.[12,13,14] This would seem to invalidate the broad use of the term virus pneumonia. When positive results are obtained by the use of intradermal tests, isolation of the agent and serological or immunological tests, the pneumonia should be considered as of a specific etiological type. Those instances of undetermined etiology are better designated primary atypical pneumonia. Certain infections which may

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closely simulate atypical pneumonia are worthy of mention. Both virus A and virus B of influenza may produce pulmonary lesions which are clinically similar. The virus of the psittacosis-ornithosis group while producing indistinguishable pulmonary lesions are usually more severe. Finally, pulmonary infiltrations may accompany infection with the virus of lymphocytic choriomeningitis. Pneumonia resulting from Q fever due to Rickettsia burneti was common in the Mediterranean and in troops returning to this country during the war. Outbreaks in laboratory workers have been reported in this country.[15] There are probably unrecognized cases also. This infection strongly resembles atypical pneumonia. Of the fungous infections coccidioidomycosis may closely resemble atypical pneumonia.[12] In a small percentage of cases primary atypical pneumonia may be extremely difficult to distinguish from bacterial pneumonias due to the pneumococcus, tubercle bacillus, Brucella abortus and Pasteurella tularensis.

Primary atypical pneumonia is of apparently wide spread distribution. Susceptibility seems to be uninfluenced by race, sex or color. The infection is most likely spread by contact with oral and nasal discharge from unrecognized or recognized infections. Attempts to produce the disease in animals have been difficult of interpretation and lack confirmation by different workers. The condition has been induced in human volunteers by the administration of sputa and throat washings, both untreated and filtered from known cases. This study concludes that atypical pneumonia is at least initiated, if not caused by a filter passing agent, presumably a virus.[14] It is likely that the incubation period may be as long as two or three weeks.

The onset is gradual with predominant constitutional rather than respiratory symptoms. These consist of malaise, fever, headache, and chilliness. Later a dry cough accompanied by substernal discomfort, gradually becoming productive of mucus, then purulent or occasionally blood streaked sputum develops. Coryza and sore throat may be observed, also gastrointestinal symptoms may be present. The temperature varies between 99 degrees and 104 degrees F., may persist from three to eight days or longer, terminating by lysis. There are instances of prostration, cyanosis, dyspnea, and even collapse. Ordinarily the illness is mild or moderate and the patient does not appear too ill.

The physical examination is characterized by a paucity of physical findings. The pulse and respirations are essentially normal. There is evidence of inflammatory reaction in the respiratory tract. Rather late in the course subcrepitant rales may be heard over the involved lung, and may persist for days or weeks. Ordinarily consolidation is not present. The leukocyte count is usually normal. X-ray evidence of the infiltration usually precedes physical signs of pulmonary involvement. Radiographically the lesion begins in the peri-hilar region and spreads out either in wedge or fan shaped fashion to the periphery. The shadow may be soft, patchy, or homogeneous in appearance.

There are certain cases which are identical to the foregoing symptomatically and on examination reveal characteristic subcrepitant rales, chiefly unilaterally, yet which fail to reveal evidence of pulmonary infiltration on x-ray. Such cases are designated "bronchitis resembling atypical pneumonia".

Pathological changes are described as consisting of an interstitial broncho-pneumonia, which may be hemorrhagic, acute bronchitis, and necrotizing bronchiolitis. In the parenchyma the mononuclear cell predominates, whereas in the bronchi polymorphonuclear leukocytes are chiefly found.

Therapy is supportive. Rest, fluids, and opiates to relieve cough and malaise are indicated. When cyanosis or anoxemia is present oxygen therapy is indicated. It is unlikely that in uncomplicated cases chemotherapy or anti-biotics are of value.

The bacterial pneumonias with sudden onset, chills, pleural pain, bloody sputum and leukocytosis in the majority of instances are readily differentiated. Viral, Rickettsial, and pneumonias due to fungi, as mentioned previously, may be differentiated by means of skin tests, bacteriological, and serological studies.

Studies on the serum of cases of primary atypical pneumonia have revealed interesting reactions. Of these, the capacity of such serum to produce agglutination of group O human erythrocytes at ice-box temperature, but not at incubator temperature, or the occurrence of so-called cold hemagglutination is significant.[11,12,16] This occurs in approximately half of the cases and appears to be related to the severity of the infection. While this phenomenon may be produced by the sera from other infections, the incidence is very much lower. Also the isola-

tion of an indifferent streptococcus, related to streptococcus salivarius type I, from the lungs and sputa of cases of atypical pneumonia, which is agglutinated by the convalescent phase serum from cases of atypical pneumonia, is of interest. These agglutinins are different from the cold agglutinins.[14] This organism is now identified as streptococcus MG, and the agglutinins occur in about 44 per cent of atypical pneumonia cases. If the convalescent serum reveals a rising titre for both of these tests, the probability is high that the condition is primary atypical pneumonia. Thus positive serological confirmation of the diagnosis of primary atypical pneumonia may now be had. However, if the tests are negative the infection may still be primary atypical pneumonia.[11]

Therapy of the pneumococcal pneumonias with antipneumococcic sera, chemotherapy and penicillin is firmly established and need only be mentioned in passing. It is worthy of note that Francis and Tillet showed that doses as small as 0.01 milligram of purified pneumococcus capsular polysaccharide injected intracutaneously were antigenic for man. MacLeod, Hodges, Heidelberger and Bernhard produced conclusive evidence of immunization by these polysaccharides against infection with the corresponding types of pneumocci. The immunity is believed to be of at least six months duration.[17] These studies appear to have laid the ground work for the employment of active immunization against pneumococcal pneumonia.

INFLUENZA

For the average individual the term influenza is synonymous with the pandemic of 1918 with its toll of twenty million deaths of which 548,000 were in this country, with an attack rate of fifty times this number.[18] This represents the most severe phase of the infection and is by no means characteristic of its usual occurrence. Three main forms of influenza have been described, namely: the pandemic which is world wide in its sweep, the epidemic which may involve large portions of a country or entire countries, and the endemic or localized sporadic out-croppings of this condition which are constantly present. The discovery in 1933 of influenza virus A by Smith, Andrews, and Laidlaw, and in 1940 of influenza virus B by Francis and Magill, working independently, has contributed much to studies of this infection. These organisms are found in the nasopharynx of victims during the first week and reveal an affinity for the mucosa of the respiratory passages.[19] The patient reacts to the infection with antibodies in the serum which reach a maximum titre in two weeks. That they are different infections is evidenced by their failure to reveal cross immunity. Their constant association with outbreaks of influenza would indicate the probability of their presence in future outbreaks. The occurrence of hypothetical influenza types "Y" and "C" as the etiological agents in wide spread outbreaks is unsubstantiated.[20] Comparing the 1918 pandemic with later epidemics, Francis[18] states, "The differences ennumerated appear to be those of degree—quantitative differences of broad epidemiologic rather than specific clinical or etiologic nature."

Knowledge as to the occurrence of epidemics of influenza would be invaluable. Many such studies have been undertaken. Since the discovery of the viruses, it has been observed that influenza A has occurred in epidemics every two or three years, while epidemics of influenza virus B occurs every four to six years. The periodicity of influenza is comparable to that of other diseases which occur in cycles, such as measles, which may occur annually in some areas, biannually in others, and in smaller populations the occurrence of epidemics is irregular. Many factors, such as the size of the epidemiological unit, intermixing of population groups, and climate appear to influence the frequency of epidemics.

There are wide variations in the clinical picture.[21] Residual immunity from previous exposure modifies the picture in the adult, while children present a more nearly typical picture. Characteristically, the picture is that of an abrupt onset with fever, generalized aching, respiratory tract inflammation and absence of other gross lesions. All cases do not present this symptom complex. A number of such cases simulate the ordinary upper respiratory infection. By clinical means alone differentiation between infections produced by the two viruses is not possible. Confirmation of the diagnosis is dependent upon the demonstration of a rise in antibody titre.

The discovery that antibodies could be produced artificially by the injection of active or inactivated virus without production of the disease, initiated

studies for the production of a vaccine to immunize against influenza. Spurred on by the war The Commission on Influenza of the Army Epidemiological Board devised a practical means to attain this purpose. A vaccine containing strains of both types A and B is available. Serologic results reveal that at the end of twelve months the antibody titre is well above the pre-vaccination level. There is also indisputable evidence that man's resistance to infection with influenza virus A and B can be enhanced.

SUMMARY

The study of the common respiratory diseases is a most complex one. The many investigations of this problem, spurred on by the necessities of the recent war, have contributed to the general knowledge of the subject. Some of these have been reviewed. This information supplemented by thoughtful observation on the part of the clinician, it is believed will be conducive to a better understanding of this problem.

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THE DIAGNOSIS AND TREATMENT OF PARESES OF THE OBLIQUES*

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Until the early part of the present century the dictum of not touching the obliques advanced by von Graefe held full sway. The first of these muscles to fall under the surgeons hands was the inferior oblique, when tenotomy of this muscle began to be practiced for paralysis of the contra-lateral superior rectus with over-action of the inferior oblique. This procedure was succeeded by myectomy and then by recession of the muscle for the same condition. The late John M. Wheeler[1] was the first to operate directly upon the superior oblique for paresis of that muscle. In the same article in which he discussed the operation upon the superior oblique he described his procedure for the surgical correction of paresis of the inferior oblique. Hughes and Bogart[2] advocated recession of the trochlea in over-action of the superior oblique, while more recently Berke[3] has described his procedure of partial tenotomy of the superior oblique for the same condition.

In the writer's experience paralysis of the inferior oblique is none too common and when encountered has generally been the result of trauma to the lower orbital margin in the region of the origin of the muscle. The main action of the inferior oblique is extorsion of the globe, while the secondary actions are elevation and abduction. Abduction has been generally accepted as a secondary function of the muscle, but the work of Krewson[4] refutes this and holds that the secondary function of the muscle is adduction, since he finds that the insertion of the muscle is anterior and not posterior to the equator of the globe. However, in a personal communication Fink[13] states that in the dissection and preparation of over one hundred globes he found the insertion of the inferior oblique to be posterior to the equator in all but three or four cases when it was at the equator.

The symptoms of diplopia in paresis of the inferior oblique are not as marked as in paresis of the superior oblique because the field of action of this muscle is up and in and the most constant use of the eyes is in the lower fields. However, the loss of the extorsion effect causes confusion and practically all of these patients will have a head tilt to the opposite side. If, for instance, we are dealing with a paresis of the left inferior oblique, in the primary position there will be some loss of extorsion power with a resultant tendency of the globe to intort. The patient then involuntarily tilts his head to the right shoulder as this will cause a compensatory extorsion of the right eye due to the action of the right inferior oblique which is brought into action by this head tilt. The tilting of the head in paresis of the inferior oblique is by no means as marked as the tilt observed in paresis of the superior oblique, nor is it usually as great as the tilt occurring in paralysis of the superior rectus, which itself is less than that occurring in superior oblique palsy. In addition to the sideward tilt in paralysis of the inferior oblique these patients characteristically carry their heads tilted backward in order to keep the eyes out of the field of action of the inferior oblique. The principal objective sign of paresis of the inferior oblique is a hypertropia of the opposite eye which increases as the eyes are carried into the field of action of the paretic inferior oblique. When adducted, the affected eye cannot be raised above the horizontal plane.

White[5] has advocated a tucking of the muscle near the insertion into the globe for paresis of the inferior oblique while Wheeler[1] described his procedure for advancement of the muscle from the origin over the orbital rim to the periosteum on the facial surface of the superior maxilla. I cannot speak with any authority on the method of tucking because I have never used it, however, tucking of any extraocular muscle seems to be a poor substitute for adequate operative procedures. The Wheeler advancement has been used with good results but a clean dissection of the muscle near its origin is time consuming because of the large amount of orbital fascia which one encounters in this location. In an effort to obviate the difficulty of dissection and still obtain an adequate result the

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writer has recently been resecting the inferior oblique near the insertion in cases of paresis of the muscle. The conjunctiva and Tenon's capsule are incised in the lower temporal quadrant of the globe and a muscle hook passed backward to engage the inferior oblique. The muscle is freed of its subconjunctival attachments and grasped with a small muscle forceps at a predetermined distance from its insertion. The muscle is then cut just distal to the forceps and the excess muscle remaining attached to the insertion is cut away. One double armed plain catgut suture is passed through the belly of the muscle proximal to the forceps and then passed through the original insertion of the muscle and tied. There is no definite amount of muscle to be resected in this procedure but it has been my practice to remove as much as possible in an attempt at immediate over-correction. Five cases have been operated upon in this manner with very satisfactory results and permanent over-correction has not resulted in any case.

It is well recognized that paresis of the superior oblique is, with the exception of paralysis of the external rectus, the most common weakness of any individual ocular muscle. In the past three quarters of a century cases of under-action of this muscle have been reported with increasing frequency, but until 1934 when Wheeler[1] reported upon his procedure for the advancement of the tendon, the surgical relief of paresis of the superior oblique was confined to procedures upon its yoke or direct antagonist muscles, with occasionally a recession of the superior rectus, or a resection of the inferior rectus of the same eye. Even since Wheeler's report the vast majority of attempts at correction of the condition have dealt with the yoke or direct antagonist muscles, and only in rare instances has the tendon of the superior oblique been operated upon.

DIAGNOSIS

In the past there has been a good deal of discrepancy among various authors as to the relative frequency of paralysis of the superior oblique and the superior rectus. Davis[6] found the superior oblique at fault in 54.5% of vertical anomalies and the superior rectus in 45.5%. White and Brown[7] reported that only four per cent of vertical anomalies were due to paresis of the superior oblique and that ninety-six per cent were due to paresis of the superior rectus. This discrepancy can probably be explained by the fact that Davis was referring to the isolated primary vertical motor pareses, while White and Brown based their opinion on the statistics of secondary vertical motor pareses such as cases of convergent squint associated with a noncomitant vertical deviation.

In order to diagnose any extraocular muscle paresis it is of course necessary to understand the functions of the paretic muscle. The superior oblique has three actions: (1) Depression of the globe; (2) Abduction; and (3) Intorsion. The depressor action of the muscle increases when the eye is turned inward and becomes practically nil when the eye is abducted. Thus, it is seen that when the globe is turned medially by the internal rectus and then depression is desired, the superior oblique exerts the strongest force upon the eye that is possible When the eyeball is turned outward the tendon of the superior oblique is situated so that it is almost at right angles to the anterior posterior axis of the globe and consequently its main action, that of depression of the globe, is reduced to zero. At the same time, however, the secondary actions of the muscles increase when the globe is turned outward, because the tendon of the muscle lies in such a position that its effect upon intorsion and abduction is greatest. Conversely, when the globe is adducted the effect of the superior oblique on abduction and intorsion is markedly decreased.

The most characteristic sign of paresis of the superior oblique is a head tilt to the opposite side. This is accompanied by a hypertropia of the affected eye which increases when the eye is carried into the field of action of the superior oblique, that is, down and in. The hypertropia is accompanied by a corresponding diplopia.

The differential diagnostic signs between the paresis of the superior oblique and paresis of the superior rectus have recently been summarized by Adler.[8] These are as follows:

(1) Head tilt. While this is present in paresis of the superior rectus it is much more marked in paresis of the superior oblique due to the fact that contraction of the superior oblique in the primary position results in 56% of the movement being intorsion, while contraction of the superior rectus in the primary position results in only 25% of its pull as intorsion.

(2) The head is always toward the side opposite

the paretic eye. This is much more marked in pareses of the superior oblique, while in those cases of superior rectus it is relatively little.

(3) If the head is tilted by the examiner toward the shoulder of the same side as the paretic eye, this eye will make an upward movement if the superior oblique is at fault. If the superior rectus is involved the eye will either not move at all or will move slightly downward.

Another factor which may confuse the picture in primary or secondary paresis of a vertically acting muscle is inhibitional palsy of the contra-lateral antagonist. When this occurs, primary paresis of the superior oblique may be easily mistaken for paresis of the superior rectus. Adler's explanation for this is interesting. If the patient habitually fixes with the sound eye there will be no inhibitional palsy. However, if he fixes with the paretic eye then the sound eye will show a limitation of movement when looking up and to the sound side. If there is a paresis of the superior oblique in the right eye and the patient habitually fixes with this eye, then on looking up and to the left the left eye will not move up as far as it normally should. This will simulate a paresis of the left superior rectus. Alder states, "the patient is fixing with his paralysed right eye. The right inferior oblique is not opposed by a normal tone from the paretic right superior oblique muscle. Therefore, less nervous impulse is needed to elevate the eye in levo-version than normally is needed. The yoke muscle of the right inferior oblique, the left superior rectus, gets less than the required amount of stimulation, which therefore prevents the left eye from moving up as far as the right eye."

SURGERY

The direct attack upon the superior oblique muscle, either in paresis or over-action, has been, for the great majority of ophthalmologists, something to be avoided at all costs. The principal objection seems to have been that the tendon of the muscle is too difficult of access. As a consequence of this belief, until the more recent past, attempts at surgical correction of paresis of the superior oblique have utilized one or more or a combination of the following procedures, with the preference being approximately in the order in which they are listed: (1) Recession of the inferior rectus of the opposite eye; (2) Tenotomy of the inferior oblique of the same eye; (3) Recession of the superior rectus of the same eye; (4) Resection of the inferior rectus of the same eye.

The writer's interest in the surgical correction of the superior oblique was stimulated by the report of Wheeler[1] on his advancement procedure for under-action of the muscle. The method now in use by the writer[9] is essentially a modification of Wheeler's procedure and was devised simply because it seemed to offer a little surer method of achieving the desired result. In the twenty cases of paresis of the superior oblique upon which I have operated Wheeler's method of advancement of the tendon was followed in the first three cases. The results in the first two cases were gratifying but in the third case, two weeks after operation there was no appreciable improvement in the paresis. It was believed that the suture through the superficial layers of the sclera in the region of the macula had pulled out. Consequently, five weeks after the first operation a second operation was performed on this patient. The tendon of the superior oblique was found to be in the same position that it had been before any operative procedure had been done. A resection of the tendon of the superior oblique was then done and has been performed in all subsequent cases.

The advantages of this modification of Wheeler's procedure are two. In the first place, in the original procedure described by Wheeler the tendon of the superior oblique is tucked without providing for the apposition of raw surfaces and, after one failure with this method in which the adhesions failed to form at all, the writer came to the conclusion that if two raw surfaces were brought in apposition the chances of a firm union would be much better. In the second place, the works of Fortin[10,11], Genet[12] and Fink[13] have shown that the two oblique muscles of the eye have their insertions in the sclera close to, or in, the macular region. In view of this, it would seem that the insertion of sutures through the sclera in this region would definitely tend to produce more trauma to the macular region than the introduction of sutures merely through the stump of the original insertion into the sclera.

An estimate of the amount of tendon to be resected can be obtained by having the globe turned strongly down and in by means of the traction su-

ture, and with the eye in this position, grasping the tendon with a forceps at various distances from the insertion and then doubling the tendon over upon itself by carrying the forceps toward the insertion. When the forceps is placed upon the tendon in such a position that when it is moved over to the insertion the tendon is fairly tight, the ideal amount of tendon to be resected will have been determined. The suture should then be placed in the tendon at the point where the forceps was located and the distal portion of the tendon resected.

A word should be interjected at this point as to the relative ease or difficulty in operating upon the tendon of the superior oblique. The principal objection to surgery upon the tendon itself has been voiced by von Graefe[14] and Jackson[15] both of whom stated, in effect, that the tendon was too difficult of access to permit surgery upon it. Wheeler[1] himself, in describing his operation, states, "It cannot be said that the operation is convenient or easy, but technically it is entirely possible and reasonable."

With the above premises the writer must disagree. The approach to the tendon of the superior oblique is certainly not too difficult for any competent ophthalmic surgeon and, once the tendon is exposed, the remainder of the procedure is neither complicated nor technically difficult.

During the past half century the oblique muscles of the eye have been treated surgically with increasing frequency. Before this time the obliques were thought to be too difficult of access to operate upon them with ease, but the great strides in the surgery of retinal detachment with consequent exposure of the obliques have served to focus the attention of ophthalmologists on the true ease of exposure of these muscles. In operations upon the inferior oblique a cleaner dissection of the muscle can be made near the insertion rather than at the origin, and it is felt that operations on this muscle near the insertion produce just as good, if not better, results than operations upon the muscle near the origin.

COMMENT

Prior to 1934, when Wheeler[1] described his operation for advancement of the tendon of the superior oblique, paresis of this muscle had been treated surgically by one of four methods or a combination of these. None of these methods directly attacked the main problem. Complete paralysis of the superior oblique is rare and what the ophthalmologist is confronted with in the vast majority of cases of disturbance of motility of this muscle is an under-action, or paresis, of the muscle. Granted that such is the case, the most logical primary procedure in relieving the distressing symptoms of this condition is upon the paretic muscle itself. If such a procedure does not result in relief of the condition, other methods may be put into use. However, it is believed that with resection of the tendon of the superior oblique as the primary step in cases of paresis of this muscle, secondary procedures will seldom be necessary and the patient will be saved the inconvenience, not to mention the expense, of several operations, the result of which cannot even be estimated in advance.

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THE MEDICAL ASPECTS OF THE ATOMIC BOMB*

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It has been estimated that energy equivalent to twenty thousand tons of T.N.T. was released by the explosion of the first atomic bomb.[1] The Smyth report stated that the critical mass of the first bombs was between 4.4 and 220 pounds. If we assume they weigh 110 pounds and 2.2 pounds underwent fission, radio activity equivalent to one hundred million tons of radium would be produced.[2] The bomb dropped on Hiroshima instantly and completely devastated an area of four square miles. Sixty-six thousand people were dead or missing, and sixty-nine thousand were injured.[3] Two hundred and sixty of the three hundred doctors in the city were unable to assist in treating the wounded.[4] Out of a total of one thousand seven hundred and eighty nurses about one hundred were available for duty and only a few of the fifty hospitals were in usable condition.[5] It is theoretically possible to produce bombs a thousand times more powerful than the ones first used. It takes little imagination to visualize the tremendous magnitude of the medical problem in a similar situation.

The immediate effects of an atomic explosion are caused by the shock wave, the thermal flash and various types of radiations. The shock wave is produced by the sudden heating of air to extremely high temperatures. It is like a sudden, violent gust of air. This explains why little direct pressure damage was found in the lungs of Japanese casualties and in the Bikini animals. When an atomic bomb explodes, a temperature approaching that of the sun is produced; and light is emitted covering all ranges of the spectrum. Within a radius of two miles radiations, which are probably in the ultra-violet range, produce "flash burns" severe enough to require treatment.

There is a tremendous amount of ionizing radiation liberated at the time of the explosion. Neutrons and gamma rays are the principal source of this irradiation. It is like suddenly releasing a massive amount of x-ray irradiation which would cause death to almost all people within a radius of 0.5 miles.

The delayed effects of the bomb are due to the radiations produced from unfissioned uranium 235 or plutonium, the radioactive fission products and the artificially induced material from the explosion. This delayed effect necessitates decontamination and removal of personnel from contaminated areas.

If an atomic bomb were detonated in the air over a city the size of Washington, D.C., it is estimated that fifty-seven thousand people would be killed or missing and fifty-nine thousand four hundred injured. The types of casualties would be: wounds 70%, burns 65%, radiations 35% plus.

The types of wounds from one group of Japanese patients at a military hospital were: fractures 11.5%, contusions 53.8%, and lacerations 34.7%. Most all of the burns encountered were "flash burns". Flame burns were rare because most all of these patients burned to death. Burns represented a large percentage of the casualties because the effective range was two miles, while casualties from wounds and ionizing radiation were within the one mile radius.

Virtually all ionizing radiation has a destructive effect on tissue. The reversibility of any specific effect is dependent upon the regenerative properties of the tissue. Cells become more resistant to ionizing radiation in the following order: lymphocytes, germ cells, granulocytes, epithelium, endothelium, muscle, connective tissue, bone and nerve cells. The cells may show chromosome breaks, increased granularity, cytolysis, changes in viscosity of protoplasm, permeability of the cell membrane, etc. Intercellular changes vary from slight alteration to necrosis. The skin shows various inflammatory and degenerative changes. Epilation occurs in the third week.[7]

The epithelium of the gastro-intestinal tract first shows edema, hyperemia, and increased secretion. The reaction usually occurs after about four days, reaching a peak with ulceration in one to two months.

*The material for this paper is based on the course on Medical Aspects of Radioactivity given by the Medical Department, U. S. Navy, and the American College of Physicians at the Naval Medical Research Center, Bethesda, Md., from February 18 to 28, 1948.

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Hemorrhagic changes further aggravate this condition. In the third and fourth months a hemorrhagic ulcerative enteritis develops similar to that of bacillary dysentery. It seems that much of the process is not only change resulting from the irradiation of sensitive intestine, but also a change due to its lowered ability to cope with intestinal microorganisms and to the lowered defense capabilities of the blood.[8]

There is almost a total disappearance of blood forming elements during the first week after the explosion. By the end of the week the reticulum begins to proliferate and differentiate into lymphocytes and plasma cells. Myeloid differentiation is seen about the fourth week. According to the Japanese, the lymphocyte count dropped immediately and reached its lowest point in about five days. A few days later the granulocyte count began to drop and the lymphocyte count to increase. About the same time the erythrocyte count began to fall so that by the end of the third week, in many cases, there was a recovery of the lymphocytes with a marked decrease in the granulocytes and an associated anemia.[9]

The hemorrhagic lesions began to appear about the end of the first month. However, studies upon a few animals suggest increased capillary fragility from the beginning. If the platelet count dropped there was a typical thrombocytopenic purpura. As previously mentioned, this condition aggravates the ulcerative lesions of the pharynx and gastro-intestinal tract. Later the clotting time began to increase, and terminally the blood may be incoagulable. This is probably due to the release of heparin or a "heparin like" substance from the mast cells surrounding the blood vessels.[10]

Most of the patients within one mile of the explosion had sperm counts under 40,000 cubic millimeters (lower limits of normal). Several patients had loss of libido or loss of potency. Less striking changes were found in the ovary. In Japan in 1944 amenorrhea was present in 12% of the population. Thirty-six per cent of the women in Hiroshima within three miles of the bomb experienced menstrual disorders. Most had one normal period followed by cessation of menses for a period of from three to four months.[11] In a recent follow up of the children born to the Japanese exposed to the radiation, no increase in abnormalties was noted.

The term "total body radiation" implies that the entire body has been exposed to the radiating source. Any part of the body shielded will alter the train of events. It is not known whether this is due to preservation of a part of the body's enzyme system, whether it is merely a quantitative factor, or unknown qualitative factors.[12]

Very little is understood about the mechanism by which radiations produce biological effects. Some believe the effect is due to a change in the nuclear protein of the cell, that is, some chemical change which prevents normal interchange between nucleus and the rest of the cell. Others believe toxic products are produced which cause cell death. Another group believes there is an interference with permeability of the cell membrane, thus interfering with normal exchange of fluids.[13]

The syndrome of acute total body radiation is initiated by ionization of the tissue by the various types of radiation. The following course is a function of the extent to which normal processes are disturbed: continued death of more and more cells is probably due to initial nuclear injury, absorption of a toxic agent produced, disturbance of the hormonal and enzyme systems and secondary bacterial invasion.

All patients within a radius of less than six-tenths of a mile, from the explosion died from the initial effects in one to two weeks. Nausea, vomiting and malaise were the presenting symptoms, then diarrhea began and continued. The stools looked like those of cholera and reached a frequency of 15 to 20 a day. The white blood count was below 1000. Usually between the fifth and seventh days there was a steplike rise in temperature which continued to rise until death. There were anorexia and abdominal pain. Acidosis and dehydration developed. The patients became weaker and weaker and seemed to die a biochemical death.

Patients from .6 to 1 mile from the explosion lived long enough for the functional changes to occur. After the initial episode of malaise, nausea, and vomiting, there was an asymptomatic period varying from one to four weeks, depending upon the amount of irradiation. Epilation was the most frequent symptom terminating the latent period. A few days later malaise and a fever, step-like in character, occurred. Diarrhea was the most prominent symptom. Inflammatory lesions of the mouth, nose, throat and gastro-intestinal tract also began about this time. Ulceration and sloughing occurred

about the time of the most severe leukopenia. Hemorrhagic tendencies usually developed about the third or fourth week. These hemorrhagic and necrotizing lesions are similar to those seen in aplastic anemia and agranulocytosis.

If death does not occur in this phase an anemia similar to that caused by benzol poisoning develops. There is usually a general debilitated condition for a long period. They may recover or die of extreme emaciation after a chronic illness. Failure of the bone marrow to recover is a prominent feature in these cases.

The treatment of acute radiation sickness at the present time consists of scrupulous sterile technique, careful nursing, care of skin, teeth, mouth, and excretory organs, maintenance of fluid and electrolytic balance, and prophylactic penicillin during the leukopenic stage. If the hemoglobin decreases or hemorrhagic tendencies appear, fresh whole blood transfusions should be given. Rutin is thought to be of value in decreasing capillary permeability. Experimental evidence indicates that protamine and toluidin blue are effective in controlling the clotting defect caused by the "heparin like" substance.[14]

A two year follow up of the bomb victims has been made recently. The complete recovery that most of the severely injured patients had made was surprising. Keloid formation was very prominent in the burned patients. This was thought to be due to an inherent factor, poor nutrition, and poor medical care. Some cases still showed fluctuations in the leukocytes. Most bone marrows showed complete recovery and there was no noticeable increase in blood dyscrasias.

Men who studied the results of the Hiroshima and Nagasaki bombings agree that a large percentage of deaths could have been prevented by adequate medical care. Both Japanese cities were completely helpless after the explosion and medical care was almost non-existent. It becomes evident that some national organization must be formed to adequately cope with a similar situation.

Each member of the medical profession should realize this added responsibility and work toward the realization of such an organization.

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Smith, Kline & French Laboratories,

Philadelphia, in 1948 awarded a total of seventy-three grants amounting to $314,761 in support of medical research. Twenty-seven of these grants were made to twenty medical schools, and the balance to institutes, clinics and individual investigators. The funds were provided under three main categories: as scholarships and fellowships; as aids to pre-clinical research in such fields as pharmacology, bacteriology, biochemistry, histology, microanalysis, mycology, organic chemistry, pharmaceutical chemistry and physical chemistry; and for support of investigations in various fields of clinical medicine as hypertension, pain, cardiovascular conditions, epilepsy, anemia, dermatology, obesity, etc.

XUM

ANO-RECTAL DISEASE: INCIDENCE IN 300 MALES OF MILITARY AGE WITH PARTICULAR REFERENCE TO POLYPOSIS

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During my service in the army, advantage was taken of an unusual opportunity to determine the incidence of ano-rectal disease in males of military age (between 20 and 40 years of age). This study was carried out in conjunction with Drs. C. M. Caravati and J. M. MacMillan. All patients admitted to the gastro-intestinal wards at Percy Jones General Hospital underwent a sigmoidoscopic examination. There were 223 consecutive admissions to the wards in this group of examinations. A second group of 77 cases was referred to us for sigmoidoscopic examination for hemorrhoids, rectal bleeding or suspected lower bowel lesion. I know of no reports based on examination of consecutive hospital admissions and hence feel that this report is of value in determining the incidence of ano-rectal disease in males of military age. One objection might be that the cases admitted to a gastro-intestinal ward would not constitute a valid cross section of the group studied; however, a large majority of the patients were admitted for peptic ulcer, functional disturbances, hepatitis and its sequelae and similar problems, with only a few being admitted primarily for ano-rectal disease.

TABLE I

CONDITION	WARD 18	OTHER WARDS	TOTAL
Hemorrhoids	44 (19.7%)	32 (41.6%)	76 (25.3%)
Polyps	8 (3.6%)	4 (5.2%)	12 (4.0%)
Proctitis	13 (5.8%)	5 (6.5%)	18 (6.0%)
Chronic Ulcerative Colitis	5 (2.2%)		5 (1.7%)
Hyp. Anal. Papillae	3 (1.3%)	5 (6.5%)	8 (2.7%)
Peri-Anal Dermatitis	3 (1.3%)	3 (3.9%)	6 (2.0%)
Anal Fissure	2 (0.9%)	4 (5.2%)	6 (2.0%)
Cryptitis	2 (0.9%)	2 (2.6%)	4 (1.3%)
Amebiasis	1 (0.5%)		1 (0.3%)
Polypoidosis	1 (0.5%)		1 (0.3%)
	82 (36.7%)	55 (71.5%)	137 (45.6%)
Patients Examined	223	77	300

Table I shows the incidence of ano-rectal disorders in our consecutive group of cases and for contrast the incidence in the cases referred for proctoscopic examination. Hemorrhoids constituted the most common disorder, being present in 25.3% of all examinations, in 19.7% of the consecutive series of cases, and in 41.6% of the referred cases. Proctitis was not uncommon and was notable in two respects. In gastro-enteritis of the non-specific variety seen among the attached personnel there was seldom any demonstrable change in the lower bowel. We also found that enemas have an irritating effect on the rectal mucosa, and soapsuds enemata were particularly irritating. One patient was prepared for examination with soap suds enemata which by error were made with green soap. The mucosa was fiery red and floods of mucus were present. Examination the following day without preparation was within normal limits. Chronic ulcerative colitis of the idiopathic type was not uncommon due to the specialization of the service. Hypertrophied anal papillae, peri-anal dermatitis (due to pruritus ani), fissure in ano, and cryptitis constituted the remainder of the minor findings.

The most important finding to us was the presence of polyps in 4% of the 300 cases, of which 3.6% were found in the routine cases and 5.2% of the referred cases. It is well recognized that polyps of the rectum and sigmoid seen at proctoscopic examination represent either pre-malignant or already malignant lesions. Brust[1] has best summarized what seems to be the present day opinion regarding adenomatous polyps of the rectum and colon.

1. They are more common in men than women, and the ratio of 3 to 2 is identical with that of carcinoma of the same portion of the intestinal tract.

2. The average age in any large series will be about 46 years, and this is about one decade younger than the occurrence of carcinoma.

3. The anatomic location of these polyps closely parallels that of cancer.

4. Symptoms are not characteristic.

5. Polyps measuring less than 1 cm. in diameter rarely produce symptoms.

6. It is difficult and dangerous to state from gross appearance that a polyp is or is not undergoing malignant change.

7. Malignant change in a polyp tends at first to be localized at the periphery and might easily be missed in removing a biopsy specimen.

8. Present day evidence points to the apparently benign polyp as the origin of many and perhaps most of the carcinomas of the rectum and colon.

Brust[1] found an incidence of 5% polyps in 4,000 sigmoidoscopic examinations, excluding hereditary multiple polypoid disease, multiple polyps, or pseudo polyps on an inflammatory basis.

C. W. Mayo[2] stated that one in every thirty-five patients examined sigmoidoscopically at the Mayo Clinic had one polyp or more. One case in every fifty-five examined by barium enema showed one polyp or more. Autopsy findings in 334 patients who had died with primary carcinoma of the colon or rectum showed 34% had polyps in addition to the primary neoplasm, and in 14% of the cases these polyps were already malignant. In an autopsy study of 100 patients who had died after surgical operations performed for conditions other than malignancy it was found that in 16 instances there were polyps of the colon or rectum in 8 of which the polyps were malignant.

Swinton and Warren[3] in a review of 156 patients with polypoid disease of the colon and rectum concluded that polyps of the colon and rectum are true tumors which are premalignant lesions and are more common than has been appreciated.

We have not analyzed our cases according to age groups but the majority were 20 to 30 years of age.

Our findings at proctoscopic examination and study of the tissues removed by biopsy are illustrative of the problem of polyps of the rectum and sigmoid in young men. The majority of the polyps were 2-3 mm. in diameter. In three cases we demonstrated polyps 1-3 cm. in diameter. One of these latter cases was found to have two polyps, one of which was pedunculated and histologically a grade I adenocarcinoma; the second was sessile and a grade II adenocarcinoma. After considerable discussion it was decided that the treatment of choice was abdomino-perineal resection following fulguration of the two polyps. The resected specimen showed no malignancy either locally or in the regional lymph nodes. This patient was referred with the diagnosis of hemorrhoids which were found, but further examination revealed the polyps with malignant changes already present. This emphasizes strongly that the diagnosis of hemorrhoids as the cause of ano-rectal hemorrhage should be made only when complete study of the lower bowel and roentgenologic examination of the colon have been completed and found within normal limits. Only one of our cases had symptoms referable to the polyp and this man had had rectal bleeding attributed to hemorrhoids for three years. We routinely investigated each case in which one or more polyps were found, by means of a barium enema with air contrast technique. The polyps were all treated by fulguration and re-examined at a later date to ascertain the results of fulguration. Fulguration can be easily carried out on polyps below the peritoneal reflection. Polyps above the peritoneal reflection are probably safest treated by surgical removal except in the hands of those who are experts in fulguration. It must be emphasized that a biopsy reported as benign adenoma means little as there may be frank malignant changes in the remainder of the polyp. The polyps beyond the reach of the proctoscope may be treated by simple removal, segmental resection, or obstructive type of resection. Brust feels that the indications for a colotomy are active bleeding, a polyp over 2 cm. in diameter or growth of the polyp being noted on successive examinations.

SUMMARY

1. Proctoscopic examination was carried out on 223 consecutive cases and 77 referred cases, in men of military age.

2. Hemorrhoids were present in 21.5% of all men in the stated age group of 20 to 40 years of age.

3. Polyps of the rectum or sigmoid were present in 4% of all cases examined.

4. The significance of these polyps and their treatment has been discussed.

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XUM

THE EFFECT OF THE MOON ON CHILDBIRTH

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For centuries it has been well known that the moon causes the tides; that farmers plant by the moon; that hunters and fishermen plan their trips by the moon; that dogs bark at the moon; that lunatics (from luna—moon) are affected by the moon; that lovers attach amorous significance to the moon; and that the average woman's menses are twenty-eight days apart—a lunar month; and that human gestation lasts ten lunar months or two hundred and eighty days.

Since I have been practicing medicine, I have often heard the nurses on the obstetrical service state that "the moon has changed and we will be getting in a new bunch of O. B.'s." I am sure that we have all heard this old tale and passed it off with a grain of salt. I became interested in the subject either to prove or disprove that there is a lunar effect on childbirth. I have searched through the literature but have been unable to find any reference to this matter. Therefore, I set forth to analyze the experience at the Roanoke Hospital over a five year period. If the largest number of births per day fell on a day when the phase of the moon changed or within twenty-four hours before or after the phase changed, then I gave that month credit for its lunar effect. If the largest number of births did not coincide with a change in phase, then no credit was given. Reference to the following table will give the summary of this analysis:

YEAR	NO. OF BIRTHS	BY MONTHS	PREDOMINATING LUNAR PHASE
1943	541	9 out of 12	Last quarter
1944	465	9 out of 12	First quarter
1945	435	8 out of 12	New and full
1946	561	5 out of 12	First quarter
1947	689	9 out of 12	First quarter

It will be seen that in forty out of the sixty months analyzed the largest number of births fell on a day when the moon changed or within twenty-four hours of such change. This is a 66.7% ratio. Whereas, if the matter were purely one of chance, the ratio would be 50% or very nearly so. Further, it will be seen that all phases were potent in affecting the birth statistics and that in three out of the five years a first quarter phase was responsible as the predominating phase.

Just what all this means I am incapable of stating. However, one may theorize that there is a lunar effect—possibly electronic on the amniotic fluid as a body of water just as on the tides in bodies of water elsewhere.

Summary: In an analysis of 2691 births over a five year period it was found that there was a lunar effect to the extent of 66.7%, thus lending weight to an age-old superstition.

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Interesting, Isn't It?

According to Howard A. Rusk, M.D., in 1948 the Federal Department of Agriculture will spend $52,000,000 on agricultural research; industry will spend $450,000,000 on research to improve manufactured products. The total spent by the government and all private foundations, etc., on medical research will be $28,000,000.

The amount spent on medical research is:

1/300 that spent on alcoholic beverages;
1/6 that spent on phonograph records;
1/3 that spent on non vending coin machines;
1/2 that spent on monuments and tombstones.

—*Connecticut State Medical Journal*

PRE-OCCUPATION WITH PAINFUL MEMORIES AS BASIS FOR NEUROSIS AND PHYSICAL ILLNESS*

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In my keen desire to be of service to you, I shall give methods which I have found usually effective in treating most patients with neurosis and patients with functional physical disease.

In my experience habitual pre-occupation involving painful emotions is the chief causative factor in the development of nearly all cases of neuroses, of functional psychoses, and of functional physical disease. In my opinion nervous and physical complaints resulting from psychic trauma vary little with the degree of the horribleness of the occurrence or of the painful memory, *per se;* but they do vary fairly accurately with the amount of time the patient has spent and spends in the resulting pre-occupation. These observations apply both to normal people and to those who have developed a neurotic pattern of behavior. If the above is granted, it follows that a neurosis is fundamentally a life-long habit of pre-occupation involving painful emotions, usually with recurring exacerbations or episodes. In my experience it can be treated successfully as such. The same is true of the various functional physical diseases and of the functional psychoses.

I have been convinced of all of the above by seventeen years spent listening to the complaints and taking histories for therapeutic purposes of office patients and of newly admitted neurotic and psychotic hospital patients. When one diligently seeks out the origin of psychogenic disease, one is impressed with three elements:

1. Distressing environmental factors in childhood.
2. The long-term habit of extensive pre-occupation with these distressing factors.
3. The marked tendency to extend this pre-occupation to more recent psychic traumata.

From tabulations made of a group of 300 consecutive patients native to this section I learn that 42% of patients with psychoneurosis give history of death of a parent or separation of parents during childhood. Fifty-two per cent did not finish the ninth grade in school, usually because they had to help with the family income. Thirty-nine per cent grew up on "Tobacco Road" or in comparable economic circumstances. Eighty-two per cent came in at least one of the above groups. The most important factors are too variable and relative for tabulation. They include invalid, neurotic, or alcoholic parents. The unhappy, inconsistent, over-shadowing, and inhibiting mother is especially important. One or more such factors are admitted readily by cooperative neurotic patients; and, in my experience, careful collateral study demonstrates such factors in all cases. Careful questioning will bring out in every case that the patient is spending hours pre-occupied with the painful memories which the above involve. Do not misunderstand me; none of the above tragedies need result in a neurosis as evidenced by people with such factors who do not become neurotic. In my opinion this is because they lead a full life and spend little or no time in emotional thinking.

The similarity of objective and subjective symptoms of painful emotions, excessive doses of epinephrine with resulting stimulation of the sympathetic nervous system, and neurotic reactions in the great majority of cases, is such that there can be no doubt as to the inter-acting mechanisms involved in the production of neurosis, and of functional physical diseases.[2,3,4,6]

Goodman and Gilman, in their *Pharmacological Basis of Therapeutics* (1941), describe the mild untoward reactions of epinephrine as "fear, anxiety, restlessness, throbbing headache, tremor, weakness, dizziness, respiratory difficulty and palpitation." They could have been describing the effects of painful emotions, or the usual symptoms of my patients and of most of this nation's millions of neurotics.

Another excellent description applicable to all of the above conditions was given by W. B. Cannon as manifestations of excitement, "The contracting of blood vessels [to the skin] with resulting pallor, the pouring out of 'cold sweat' [most commonly noted on the palms], the stopping of saliva-flow

*Address given before the annual convention of the Seaboard Medical Society of Virginia and North Carolina, at Virginia Beach, December 3, 1947.

so that the 'tongue cleaves to the roof of the mouth', the dilatation of the pupils, the rising of the hair, the rapid beating of the heart, the hurried respiration, the trembling and twitching of the muscles, especially those about the lips—all these bodily changes are well recognized accompaniments of pain and great emotional disturbance, such as fear, horror, and deep disgust." Cannon offers clear evidence of the similarity of the action of epinephrine, or, as he calls it, "adrenin", to the painful emotions. He states, ". . . in pain and deep emotion the glands . . . pour out an excess of adrenin into the circulation."[4] He considered this of biological significance in the struggle for survival. Therefore, this response to the danger signal of painful emotions should be as uniformly a part of us as is any other of our faculties.

As a result of adrenin secretion and other factors, Cannon stated that blood pressure "may suddenly rise during extreme effort from approximately 110 mm. to 180 mm. of mercury."[4] He might have added that there is a neurotic or psychosomatic form of hypertension, probably the usual form of early hypertension. Our war experience teaches that palpitation, extrasystoles, paroxysmal tachycardia, and other functional heart conditions are emotional in origin.

Cannon quotes Oliver and Schafer as showing "that injected adrenin drove the blood from the abdominal viscera into the organs called upon in emergencies—into the central nervous system, the lungs, the heart, and the active skeletal muscles." Cannon himself found that, "conditions favorable to proper digestion are wholly abolished when unpleasant feelings, such as vexation and worry and anxiety, or great emotions, such as anger and fear, are allowed to prevail."[4]

Thus we have the physiological bases for understanding why emotional upsets result in gastro-intestinal upsets of all types. If painful emotions persist sufficiently long, mucous colitis or spastic colitis are likely to develop. In the light of our present inability to find any other demonstrable ultimate cause for duodenal ulcers and in the light of clinical observations by experienced doctors that onset and exacerbations of duodenal ulcers usually follow psychic trauma, it appears highly probable that directly or indirectly chronic painful emotions are the basic cause of duodenal ulcer. Where psychic trauma seems minimal or absent, in my opinion, there has been pre-occupation with the sources of former traumata. Perhaps we should look for psychic trauma as an important factor in the development of other types of pathology of the gastro-intestinal tract. In emphasizing psychic factors, Alvarez quoted Ivy's facetious remark that "he had little hope of ever producing the human type of ulcer in dogs until he could get them to worrying about crashes in the stock market."[8]

In the majority of cases of endocrine disturbance we usually are unsuccessful in demonstrating a tangible basic cause such as infection, tumor, senile degeneration, food deficiency, poisoning, physical trauma, or congenital defects. Cannon amply demonstrated that "in man emotional excitement produces temporary increase of blood sugar"[4] and considered that the adrenal gland had a primary role. In view of causative body lesions being not demonstrable at autopsy in many cases of diabetes, it appears appropriate that emotional factors be not ignored, at least until research can explain more adequately the ultimate cause of diabetes in the numerous idiopathic cases. By experience and by extensive study I am convinced that the multiple symptoms occurring toward meal time in the nervous patient including headache, faintness, fainting and convulsions, are emotional in origin and involve the endocrine system and glycopenia. Writing in 1933, Flanders Dunbar, in *Emotions and Bodily Changes*,[6] quoted Bram as demonstrating (in 1921) that of 3343 cases of exophthalmic goitre, 85% presented a clear history of psychic trauma as the exciting cause. Except for occasional tumors, no other cause has been demonstrated. I predict that in the years to come all cases of endocrine disturbance not produced by basic causes demonstrable at autopsy and in the pathological laboratory will be considered as psychogenic in origin.

I call your attention to other examples of the many phenomena which command recognition of their psychogenic origin. Dunbar quoted Cannon as demonstrating that cats in the presence of a dog for one minute showed an average increase in red cells in the blood of 27%.[6] When one recalls that red blood cells have an average life of 80 days, it becomes obvious that these cells added to the blood stream had been stored in the spleen or elsewhere. Thus a normal cell count in a tense or excited patient can be presumed to give a false idea as to the total available red cells. Cannon[4] demonstrated the

hastening of the coagulation of blood in pain and in great emotions. It has been proven that numerous other changes in blood chemistry result from painful emotions.

I now shall discuss what I find in the usual nervous patients referred to me. I consider that they have anxiety neurosis, or, if current nomenclature requires another name, the true psychopathology is always the same, anxiety-like reactions resulting from pre-occupation with the sources of painful emotions. For the purpose of this paper, I omit certain groups of nervous patients; first, patients with organic diseases of the central nervous system; second, a very small group of brilliant people of habitus and of habits we might call the race-horse type who work themselves nearly to death; and, third, a group who by mechanisms of self-deception are relieved of painful emotions by converting them to invalidism.

The remaining patients constitute the great majority of our eight or ten million neurotics and include stutterers, almost all alcoholics, most veterans drawing pensions for psychoneurosis, unhappy housewives, delinquent children, and most criminals. Despite the diversity of their symptoms they are similar in their basic characteristic, i.e., their anxiety-like reactions resulting from habitual pre-occupation with painful memories and emotions. They are similar still further in my opinion in their indicated treatment.

Nervous patients of this every-day type have many traits and factors in common and they are present in nearly every case. These patients exhibit physical evidence of stimulation of the sympathetic nervous system with secretion into the blood of excessive epinephrine and of other pressor substances all of which are in response to long lasting painful emotions such as chronic rage, remorse, fear, anxiety, and conflict. Usually quite a number of such painful emotions are present. Platitudes about suppressing these emotions are useless.

These patients are pitifully lacking in sincere self-esteem, and tend to improve upon sympathetic, patient, and intelligent attempts to bolster their morale.

These patients are self-centered in their meditations; pre-occupied with their own past emotional difficulties, with their own physical complaints, or with anxieties concerning their own future. They tend to improve when they can be inspired to show real self-sacrificing interest in others.

The virtues of these patients are of the perfectionist type; and they are intolerant of imperfections in themselves, in their children, and in others.

These patients are members of neurotic families, and it is often almost useless to treat the patient alone.

As given above, these patients have a history of an unhappy or inhibited childhood, including such factors as an early death of a parent, separated parents, quarreling parents, dire poverty, or an overshadowing mother.

I leave until last, for emphasis, the most important and nearest universal characteristic. These patients have shut-in habits. They are withdrawn, unnaturally introverted, excessively sensitive as to what others may say or think concerning them. Their attempts at correction of these faults, or compensation for them, are usually superficial and pitiful. Pre-occupation with painful emotions results from their lonely habits, their difficulty in sleeping, their inability to get interested in wholesome diversion, and their "dilly dally" way of working. In their meditation there are "kicks in the pants" usually for themselves, their parents, their childhood playmates, their neighbors, their fellow workers, their spouses, and their children. Their frustration, their unsatisfied sex experiences and urges, their conflicts, their anxieties concerning the future, and their resulting physical complaints, also are included often in their unhappy pre-occupation.

A first interview should take two or three hours and end with a mutual understanding and plans for treatment. In the study of any patient the first step is a careful physical history and a thorough physical and neurological examination. The patient is fully aware of many of the numerous factors involved in his case. His rage or his remorse should be softened by an hour or two spent in an emotional ventilation, confession, or catharsis; call it what you will. This gives the patient a much better understanding of himself even before the doctor has said anything other than to lead him on with a few kindly thought-provoking questions. At the end of such a session even the most painful emotions already have far duller edges. The patient is in a fairly receptive mood, and many things can be said to resolve further the painful emotions.

The doctor now has a fair understanding of the patient; and what is more vitally important, the pa-

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tient feels that he is understood and now keenly desires instruction and advice. Emphasis is placed upon the fundamental differences between him and wholesome people, i.e., those differences acceptable for therapy. Usually it is feasible to have the patient understand the self-centering involved in his pre-occupation and to inspire him to a more social attitude. The patient has brought out already that he spends many hours a day pre-occupied with the sources of his painful emotions. Emphasis is placed upon this being the fundamental difference between him and wholesome, happy people. After long discussions of the more interesting pastimes available, and a fuller life without any immediate increase in physical activities, every effort is made to inspire the patient to make every waking hour an interesting hour to the exclusion of all painful unproductive thinking. Diversion is to be taken in the company of others as much as is possible, as most of these patients cannot read or listen to the radio without spending half of the time in painful emotional preoccupation. For the first few nights sufficient hypnotics usually must be provided, in decreasing doses, to guarantee sound sleep. The patient is told to get up promptly when he awakens in the morning. Sedatives in the day prevent interest in carrying out the regime, and thus encourage pre-occupation with painful emotions. If the patient is carrying responsibilities the loss of efficiency produced by sedatives may produce panic. Instead, stimulants such as dexedrine are ordered in indicated cases.

In my experience the majority of these nervous patients can be inspired to carry out the above regime whole-heartedly. When these return a few days later, they happily state that they have lost their symptoms such as nervousness, fatigue, throbbing headache, nervous indigestion, and nervous heart symptoms such as palpitation, skipped beat and paroxysmal tachycardia; and above all, they have lost their fear of bodily illness and their anxious expression, for they now understand the cause and the mechanisms involved and know how to handle them. In many cases the regime has been followed only half-heartedly and with only slight improvement. In such cases another hour spent in inspiring the patient usually will be fruitful. The patients constituting the group previously mentioned as using mechanisms of self-deception to obtain relief from painful emotions by converting them to invalidism show poor response to this direct method if used alone.

Success with this simple method requires that the doctor assure himself that he has found or ruled out any physical condition requiring other treatment; and that he have and show unstinting patience, abundant sympathy, faith in the result of this therapy, and ability to inspire that faith.

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Spring Graduate Course.

The Gill Memorial Eye, Ear and Throat Hospital will hold its twenty-second annual spring graduate course April 4th to 9th in Roanoke. In addition to the resident staff, the faculty includes prominent specialists in ophthalmology, otology, rhinology, facio-maxillary surgery, bronchoscopy and esophagoscopy. These are listed in the advertising pages of this issue. Several social features are interspersed with the scientific work. Further information may be obtained from Dr. E. G. Gill, Box 2467, Roanoke, Va.

XUM

CONGENITAL TUBERCULOSIS— A Case Report*

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and
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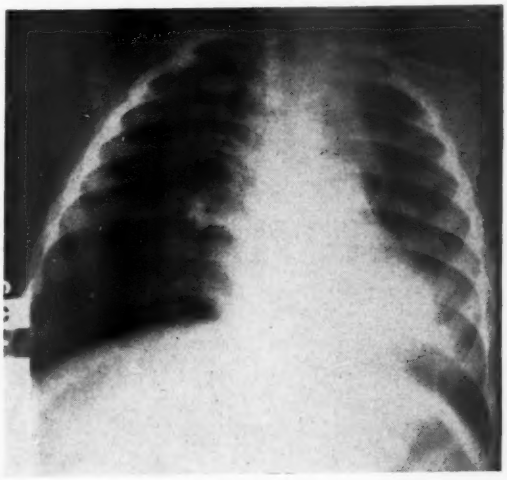
From reports in the literature, it would seem that authentic cases of congenital tuberculosis are rare. Authors in reviewing the literature report widely varying numbers of cases. Depending upon the author, the number of authentic cases varies between 63 to 118, with over 500 cases being more or less doubtful.

Conrad,[1] has given an excellent review of the literature on congenital tuberculosis and added one case himself. We have made no attempt to review the literature in this report but wish to add another case of proven congenital tuberculosis to the record.

Case No. 209205—University of Virginia Hospital: C. L. B. was a white female premature infant who was born unexpectedly in a women's medical ward on January 3, 1945. The period of gestation was seven to eight months. The mother, at the time of the infant's birth, was moribund and in an oxygen tent. The baby was taken to the premature nursery immediately where she was given a soap and water bath and placed in an incubator with continuous oxygen. The condition of the baby on admission to the nursery was good. Her birth weight was 1630 grams (3 lbs., 9½ oz.). The placenta was examined microscopically and miliary tubercles were found on both the fetal and maternal surfaces.

No. 1. Chest X-ray, March 24, 1945

Seven days after the birth of the child the mother died of extensive miliary tuberculosis.



No. 2. Chest X-ray, May 19, 1945

The baby was given routine premature care and was fed every three hours a special lactic acid milk formula with nutramigen added.

The infant did well for the first thirty-nine days. The temperature was normal and stable up until that time, and the child had gained 13 oz., weighing 1990 grams or 4 lbs., 6½ oz.

On the fortieth hospital day the child's temperature rose to 102° (R). Fine and coarse rales were heard over the right lung fields both anteriorly and posteriorly but most marked over the right apex anteriorly. The baby was given penicillin, 2500 units intramuscularly, and ¼ % neosynephrine nose drops. Her temperature became normal on the forty-fourth hospital day and remained normal until the forty-seventh hospital day at which time the

*From Department of Pediatrics, University of Virginia Hospital.

temperature rose to 101.2° (R). From the forty-fourth hospital day until the seventy-ninth hospital day, the infant's temperature remained elevated, often reaching as high as 103° (R).

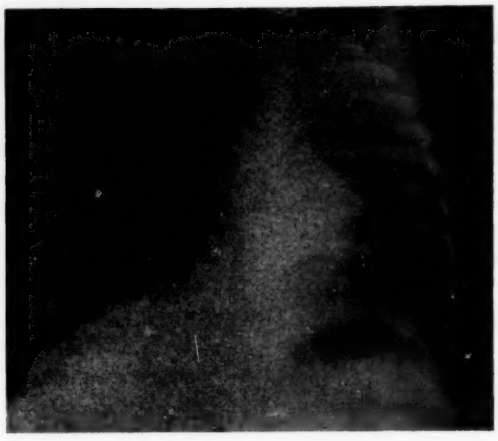
On the fifty-sixth hospital day chest plates were taken. No abnormalities were noted on these films. On the seventieth hospital day another chest plate was taken. These films showed a spotty infiltration involving the upper portion of the right apex. There was a hazy pneumonitis in the left apex and the lung markings extending down into both bases were heavy and fuzzy. The density in the right apex was of a nodular type while that in the left upper portion of the lung was homogeneous.

The mediastium was not well visualized as the baby's body was rotated. There was no evidence of calcification. Tuberculosis could not be ruled out from the chest films. A patch tuberculin test was positive. Routine and special intradermal tuberculin tests were negative at that time.

No. 3, Chest X-ray, July 21, 1945

During the febrile period several urinalyses were done. On one occasion many white cells were seen, but no albumin was present. On another occasion many bacteria were seen. A urine culture was positive for B. aerogenes and B. coli. The white cell count ranged from 14,000 to 7,600. The red cell count varied between 3.3 million and 2.3 million. Blood cultures were negative. The child was given three whole blood transfusions. On one occasion the child had a severe bronchospasm and circulatory collapse. She became cyanotic and almost died. Following the other two transfusions the child had shaking chills.

In spite of the infant's illness, she ate fairly well and gained weight. She was discharged on the eighty-first hospital day weighing 2850 grams (6 lbs., 4½ oz.).



No. 4, Chest X-ray, October 12, 1946

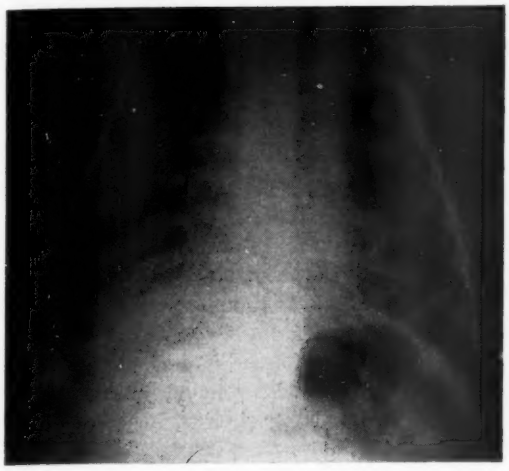
On the day of discharge check chest plates were taken. There remained a marked inflammatory reaction in the upper halves of both lungs which was more marked than at the time of the last examination. There was a mass projecting into the left upper lobe just above the root zone which was thought to be glandular in nature.

Two weeks following discharge when the child was three months of age, she was seen in the Pediatric Clinic. The child had gained 3½ oz. A routine tuberculin skin test was done and this was positive. X-ray plates showed relatively little change in the chest.

On April 28th, when the child was three months and three weeks of age, a patch tuberculin test was done. This test was positive.

On May 19th, when the patient was four and one-half months of age, she was seen again. She weighed 7 lbs., 14¾ oz. This represented a gain of 10¾ oz. Check plates at this time showed the spotty infiltration in the right upper lobe to be more marked. The individual spots were larger, softer and tended to coalesce. It was thought that a few small soft calcifications could be seen in the right hilar region. The upper and lower portions of the left upper lobe were opaque. The left upper lobe was consolidated and the right upper lobe was more extensively involved.

On July 21, 1945, when the child was six months



No. 5, Chest X-ray, June 6, 1947

and eighteen days of age, she was seen again in the Pediatric Clinic. She weighed 9 lbs., 5 oz. This represented a gain of 1 lb., 6 oz. Her aunt said that she was not eating well, and that, for the past six weeks, there had been a clear sticky discharge from both ears. Acid-fast smears of the discharge were positive for tubercle bacilli, Gaffky #2. Check plates at that time showed no appreciable change in the chest.

The patient was not seen again until June 6, 1947, when she was two years and six months of age. At that time she weighed 19 lbs., 8 oz.

Films of the chest showed calcium deposited in the right upper lobe and throughout the inner zone of the entire left lung, giving it a mottled appearance. It was thought that there was a soft infiltration into the right apex and left base and possibly the right base. This was thought to be suggestive of active tuberculosis.

SUMMARY

A case is reported of a premature infant born of a mother with miliary tuberculosis. The placenta had tubercles on both the maternal and fetal surfaces. Positive tuberculin tests and chest X-rays were obtained. Finally, the tubercle bacilli were recovered from a draining ear. At the age of 23 months this child is still living.

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British Doctors Flooded With Patients.

British doctors are so flooded with patients under the National Health Service that they do not have time to examine serious cases, reports the regular London correspondent of *The Journal of the American Medical Association.*

In the November 13 issue of *The Journal,* the correspondent says in part:

"With the onset of colder weather, doctors now complain that they are so flooded with patients under the National Health Service that they do not have time for the examination of serious cases.

"Hypochondriacs and persons who have only such ailments as slight colds, for which they would not trouble a doctor if they had to pay, come in numbers.

"At the first annual meeting of the Executive Councils' Association of the National Health Service, the Minister of Health, Mr. Bevan, confirmed this waste and referred to other forms of waste as follows:

" 'Because things are free is no reason why people should abuse their opportunities. This is a very great test of the maturity of the British people, in so far as they have all the resources of the medical profession at their disposal without charge. The general practitioner has a very great responsibility. Over-prescribing can be as bad as under-prescribing. Some general practitioners are very conscious of the impressiveness of long lists of drugs in their prescriptions on the psychology of their patients.'

"Mr. Bevan said that it seemed that an extraordinary proportion of the population had bad sight. The rush for spectacles had been so great that it had overtaken productive capacity."

XUM

THE PROFESSIONAL RESPONSIBILITY IN THE CONTROL OF CANCER*

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Because cancer has advanced in the last 25 years from the seventh to second place as a cause of death in the United States, a broad and intensive national campaign to fight it is necessary. Paradoxically, the scientific discoveries, medical advances and public health measures that have made it possible for more Americans to live longer have also made it probable that more Americans will die of cancer. It is in the middle and late years of life that cancer takes its greatest toll. Babies born in the United States today have a life expectancy of 66 years. With this gift of longevity goes a penalty: 20% of the boys and 22% of the girls, it is estimated, will have cancer sometime in their lives. How many die of it depends upon whether some means of prevention or cure is found, or, failing that, whether the cancer is detected early enough for successful treatment by the three present day methods—surgery, X-ray or radium.

It was not until physicians realized that early diagnosis was the first essential step, did the mortality from cancer show a decrease. It seems strange now to contemplate the countless number of years before this simple observation forced itself on the minds of the physicians. It does not appear to be so long ago when, in my college days, the keenest diagnostician was the one who could feel the mass of a gastric neoplasm with little or no interest in finding a better method of making an earlier diagnosis.

In many ways our medical schools have been slow in bringing to the student body even today the proper approach to this problem. Very little correlative emphasis has been placed on the subject of cancer in the preclinical years and not sufficient coordination of the instruction in the clinical years. The time, in my opinion, has come when every student should be exposed to a well regulated detection tumor clinic where exhaustive studies are made, not only on diagnosis but on the more recent developments in treatment. Our medical school has such a clinic but to what extent this new departure in teaching will succeed will depend not only on the setup in the school curriculum but also on the enthusiasm and sound leadership of the physicians in charge of its policy. The faculty responsibility in creating for the students a detailed course in neoplastic diseases is a logical one and should be mandatory in every school of medicine. In no other way can the next generation of physicians be trained to carry out this duty to society. Much discussion is now being given to the merits of a "vertical" plan of teaching cancer. Cancer is, at present, given a "horizontal" treatment, that is, the subject is presented in many departments of the medical school and in the clinics specializing in diseases of some particular part of the body. A vertical method of teaching cancer would bring this knowledge to him as a unit. Such integrated instruction would permit the class to have a more comprehensive grasp of the medical problem and thus encourage a keener insight into this disease.

The second professional responsibility in cancer control is in the reeducation of ourselves, as well as other physicians, in our attitude toward this problem. It is not enough for a physician to remember what he was taught as a student. Medicine is not static, and unless, by study and the attendance on post-graduate clinics, he keeps himself informed on these matters he becomes a liability in the offensive against this deadly enemy of mankind. Too often a patient in good faith goes to such a physician for an examination and is called a neurotic for her justifiable concern. It must not be forgotten that every patient is a potential cancer victim and she is entitled to a painstaking study, regardless of her complaints. In a matter of this magnitude every physician must recognize his own limitations, both in training and equipment. When either of these essentials is lacking, no distance is too great to seek assistance when a doubtful lesion presents itself. It is better to have a dozen unnecessary biopsies and find one unsuspected malignancy than to ignore the entire group. It must be remembered that to many of us, who were in school 25 years or more ago, cancer was indeed usually a

*Presented in a Symposium on Cancer Control at the annual meeting of the Virginia Chapter of the American Cancer Society, March 26, 1948.

fatal disease and it did not make much difference whether a correct diagnosis was made or not. In view of recent advances in diagnosis and treatment, it behooves us to revamp our thinking in such instances and give our patients the benefit of the best possible advice. Much is now being done to remove this handicap. Refresher courses are increasing annually, city and county societies are stressing cancer control on their programs, popular magazines are providing worthwhile articles and the public is demanding an enlightened medical profession. The family physician is the main cog in this campaign for early diagnosis, and unless he adopts a high standard of procedure many opportunities for cancer control will be lost. Dr. Frank Adair has listed ten points on "What a Doctor Looks for at a Periodic Cancer Checkup." They are worth repeating:

1. He examines the skin of the face, body, and extremities for scaly, bleeding warts, black moles, and unhealed scars.
2. He examines the lips, tongue, cheeks, tonsils, and pharynx for persistent coughing.
3. He examines every woman's breasts for lumps or bleeding nipples.
4. He examines the subcutaneous tissue for lumps on the arms, legs, or body.
5. He investigates any symptoms of persistent indigestion or difficulty in swallowing. He palpates the abdomen.
6. He examines the lymphoid system for enlargement of the nodes of the neck, armpit, groin, etc.
7. He examines the uterus for enlargement, lacerations, bleeding, or new growth. He makes a bimanual examination to determine the condition of the ovaries.
8. He examines the rectum, and determines the cause of any bleeding or pain.
9. He examines the urine microscopically for blood.
10. He examines the bones and obtains an X-ray diagnosis of any bone that is the seat of a boring pain, worse at night.

The third professional responsibility toward cancer control is to bring home to the people the need for their complete cooperation. An early diagnosis cannot be made unless the patient presents herself for study and an effective cure cannot be brought about unless she accepts the well considered judgment of the clinician. Naturally there will be differences of opinion and at times mistakes will be made.

In dealing with the public, every physician finds that fear of cancer and the alleged disgrace of cancer and the impression of the incurability of cancer are among the most formidable obstacles in the early diagnosis of this disease. In some instances fear is the motivating influence that drives the patient to the physician for counsel. Fear, however, may magnify in her mind evidences of disease that do not actually exist and thus create an unjustifiable phobia with its attendant ills. On the other hand, fear of cancer may cause a withdrawal within herself and so inhibit her natural desire to seek aid in this unhappy situation.

Mass education is the only cure for this dilemma. An enlightened person can help herself. Enlightened relatives can save the lives of loved ones by insisting on early examinations and prompt action on the recommendations following such examinations. These are problems of a psychiatric nature which must be educated out of the lay mind if we expect to obtain their complete cooperation. The physician has the opportunity to discuss these attitudes with them and with a judicious approach can go a long way toward dispelling these pathologic concepts of cancer.

The family physician is the proper person to disseminate the knowledge about cancer control among the people, as it is only through him that adequate steps can be taken to lower its mortality.

The American Cancer Society through its subsidiaries has carried on a nation wide campaign to enlighten the people not only how cancer can be detected but that cancer is curable when an early diagnosis can be made. The physicians constitute the steering committee as well as liaison officers between the trained laboratory investigators and the public. Their task is a stupendous one because it is due to their wise counsel as well as to their alertness in ferreting out the early signs of malignancy that cancer will be ultimately brought under control.

Medical Arts Building.

XUM

FACTORS IN PREGNANCY AFFECTING THE NEWBORN*

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Norfolk, Virginia.

There are certain factors in pregnancy that affect the newborn. There are certain congenital defects that are caused by these factors. There are certain congenital anomalies that are hereditary. There are some anomalies that may be due to hereditary influences at one time, and to some adverse factor in the mother another time. For instance, congenital cataract may be hereditary through the genes or it may be caused by a mother having German measles (rubella) during the first trimester of pregnancy.

I have attempted to review the literature to find the known factors in pregnancy which may cause a defective newborn, and also other factors which according to experimental evidence in animals may cause defects.

Within the last few years certain observations and discoveries have contributed to the better understanding of conditions affecting the fetus and the newly-born infant. Among the most important of these have been: (1) the recognition of the harmful effect on the fetus of German measles during the early months of pregnancy, (2) the discovery of the Rh factor and its relation to erythroblastosis, (3) the experimental work in nutritional and vitamin deficiencies in producing anomalies, and (4) experiments on pregnant animals with x-rays and radium rays producing congenital malformations.

First, what infections during pregnancy may produce defects in the newborn? It has been recognized for sometime that any illness during pregnancy is likely to have occasional serious effects on embryonic growth and development. It was noted in the epidemic of influenza in 1918 that practically every prospective mother who acquired the disease died or aborted a dead fetus. It is significant that this epidemic has now been discovered as having been due to a virus. Embryonic tissues are more susceptible to infections than adult tissue. This is the basis of Goodpasture's virus culture technic. The human embryo possibly possesses the same susceptibility to infection. The virus may pass the chorionic villi more readily than bacteria before a placental barrier has been developed. Recently pediatricians and obstetricians have been aroused by what appears to be a definite association between certain congenital anomalies or defects, and virus infections in the mother during pregnancy. This interest was particularly aroused when Gregg[1] in 1941 reported before the Opthalmological Society in Australia, 78 cases of congenital cataract in children whose mothers had German measles during the first three months of pregnancy, during a large epidemic of German measles which broke out in New South Wales in June to August, 1940. Following this Swan[2] and his co-workers examined these cases as they grew older and found that they had heart lesions, deaf-mutism, and most of them were microcephalics. In 1946 Swan and Tostovin[3] studied 56 infants and 2 fetuses; 46 of these had congenital malformations. In 40 cases the mothers had German measles in pregnancy. Thirty-six of the infants and one fetus had congenital defects. The abnormalities comprised 11 cases of deaf-mutism, and 11 cases of both deaf mutism and heart disease. There were combinations also of cataract and heart disease. There was one case of mongolism and heart disease. Other cases were spinabifida, cleft palate, microcephaly, spastic diplegia and mental defectives. In most of the cases the mothers had had German measles in the second and third months of pregnancy, only 2 in the fourth month, and 1 each in the fifth, sixth, and eighth months. There were three instances in which the infants were born normal, the mothers having had the disease in the second, fourth and sixth months of pregnancy. There were 16 cases of infectious diseases during pregnancy other than German measles. There were 8 cases of red measles (Morbilli) (2 babies were defective), 3 cases of mumps (all babies had defects), 2 cases of chickenpox (1 baby was malformed), 2 cases of herpes zoster (both babies had abnormalities), and 1 case of scarlet fever (the baby was defective).

There have been other reports in the American literature and also from other countries confirming these observations. In 1944 Reese[4] in this country reported 3 cases of congenital cataract. Erickson,[5] the same year, reported 11 cases and all but 2 had

*Read at the annual meeting of the Medical Society of Virginia in Roanoke, October 13-15, 1947.

congenital heart disease, and 9 had cataracts. Perara[6] reported one case with cataract and congenital heart disease. Carruthers[7] from Australia reports 7 cases of deaf-mutism following maternal German measles during the first three months of pregnancy. Adams[8] of Minneapolis reports 2 cases of congenital cataract and heart disease. Albaugh[9] of Los Angeles reports 9 such cases. Altman and Dingman[10] of New York report 1 case of cataract. deRoeth and Greene[11] report 2 cases of congenital cataract, one of which also had heart disease and the other had microcephaly. Dupont Guerry[12] of Richmond, Virginia, reported in 1945 2 cases of congenital glaucoma. In 1946 Pendergrast[13] of California, through a survey made by questionnaires to 91 obstetricians, ophthalmologists and pediatricians, reports 80 cases of congenital cataracts and 10 other ocular defects, 32 cases of cardiac defects and 10 cases of other congenital anomalies following maternal German measles. In 1946 Goar and Potts[14] from Houston, Texas, reported 6 cases of congenital cataract from their office in one year, following an epidemic of German measles in that area in 1942-1943. All cases had other defects, usually congenital heart disease, and some were mentally defective. All cases of maternal German measles occurred in the first three months of pregnancy. In 1945 Christie et al.[15] of Vanderbilt reported 5 cases of congenital defects, cataracts, heart disease, and one case of mental deficiency from maternal German measles in first three months of pregnancy.

Concerning deaf-mutism there have been several surveys made from schools of the deaf and dumb. Hopkins[16] contacted, by way of questionnaires, 116 mothers of children at the Clarke School for the Deaf and of these 10 replied that they had German measles during the early months of pregnancy. Two others had influenza. Another inquiry was made at Cuckfield House Oral School for the Deaf in Sussex, England, and of 18 children in the school, a history of German measles in the mother was obtained in 8. All cases were within the first four months of pregnancy. Surveys were made at three larger English schools for the deaf, in Manchester, Dorchester and Birmingham and a history of maternal German measles was obtained in 15 per cent of the deaf children.

I have been able to find a total of 312 cases of congenital defects reported in the literature from maternal German measles during the first three months of pregnancy. In the total cases, 80 per cent of the offsprings had cataracts; 62 per cent were mentally defective; 57 per cent were found to have heart disease; 54 per cent of the total were found to have the combination of cataracts and heart disease. Other anomalies found were deaf-mutism, mental deficiency, microcephaly, hypospadius, microphthalmus, and obliteration of the bile ducts. There was no apparent relationship between the severity of the disease and the defect, but there was a definite relationship between the time of the illness in terms of fetal age, and the type of defect. There were more cataracts and heart disease from 6 to 8 weeks of fetal life, which corresponds to the development of the eye lens at that time, and more deaf-mutism if the disease occurred at 8 to 12 weeks of fetal life, which corresponds to the embryonic development of the cochlea of the ear.

Of the other disease which have long been known to affect the newborn, the most important is *syphilis*. Congenital syphilis is caused by the placental transmission of Treponema pallidum. Of the pregnancies occurring in untreated syphilitic women, around 30 per cent will result in the death of the fetus before delivery and approximately 80 per cent of the children born alive will have the disease with defects which are familiar to you all. *Fetal smallpox* has been observed in fetuses older than three months. After having an attack, the fetus may recover and be born with scars. Rare cases of *fetal measles* and *scarlet fever* have been reported. There is an increased incidence of various congenital anomalies in infants born of *diabetic mothers*. In adequately treated mothers the neonatal mortality rate has been reported from 12 to 20 per cent, and on inadequate treatment 60 to 70 per cent. Since the discovery of the *Rh factor* in the blood and its relationship to erythroblastosis, we have found another explanation for a congenital disease for which we formerly did not know the cause.

Nutritional factors may adversely influence the embryo. Maternal dietary deficiency may induce malformations in the young. There is no way at present of estimating how frequently maternal dietary deficiency is actually a factor in the etiology of mammalian defects. However, experiments and observations in this field give an insight into some of the normal chemical processes essential for prenatal development. They show that a lack of dietary elements which cannot be synthesized by the

mothers or the embryo may cause pathologic conditions in the embryo.

Iodine deficiency in food and water results in goiter in man as well as in animals. In many regions of Europe, Asia, and South America endemic goiter of the parents is associated with endemic cretinism of the children. The serious mental and physical retardation of the offspring is due to a lack of iodine in the maternal diet. That deficiencies of other nutritional constituents of the maternal diet may result in defective offspring has been demonstrated in animal experiments. Congenital blindness, microphthalmus, and anophthalmus have been attributed to a deficiency of vitamin A in the maternal organism. Warkany[17] of the Childrens Hospital Research Foundation of Cincinnati has observed congenital defects of the eyes in the offspring of rats raised on a diet free from carotene and vitamin A. Congenital defects such as cleft palate, fusion of ribs, and syndactyly can be induced in rats by maternal riboflavin deficiency according to experiments of Warkany[18] and co-workers. Congenital bowing of the bones of the fore arms and legs is seen in rats whose mothers have been fed a diet without vitamin D and with an abnormal Ca: P ratio. These deformities can be prevented by the addition of vitamin D to the maternal diet.

X-rays and radium rays are capable of arresting embryonic development and of producing congenital malformations. It has happened repeatedly that women who were exposed inadvertently to therapeutic doses of x-rays during the first few months of pregnancy have given birth to defective children. Microcephaly, mental retardation, spinabifida, deformities of the extremities have been found in such children. Murphy[19] and other animal experimenters have been able to produce congenital anomalies in the offspring of rats who have been exposed to roentgen rays at different stages of fetal life. Just what effect atomic rays will have on the offspring of the pregnant is not known, but it is thought that they undoubtedly will cause defective offspring.

Age or some endocrine disturbance associated with age is thought to be a factor in causing mongolism. Most cases of mongolism are from mothers over 40 years of age. Forty-one, according to Bleyler,[20] is the peak age of mothers producing mongoloid offspring.

SUMMARY

1. Infections during pregnancy may cause congenital defects in the newborn. German measles in almost 100 per cent of cases will cause congenital cataracts, heart disease or deafness if the mother has the disease during the first 8 weeks of fetal embryonic life. Other virus diseases have produced congenital defects.

2. Nutritional deficiencies in the mother and in particular the absence of certain mineral elements or vitamins can cause defects in the offspring.

3. Actinic rays, either radium, atomic or roentgen rays are capable of arresting embryonic development and producing malformation.

Physicians should inquire into the newborn mother's history during pregnancy and record all illnesses or unusual conditions so that data will be available for the proper evaluation of factors in pregnancy affecting the newborn.

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412 Medical Arts Building.

DISCUSSION

DR. LEE E. SUTTON, JR., Richmond: Dr. Mullen has just given us a nice review of the etiological agents which are believed to be factors causing general defects in infants. Just recently there has appeared in Volume 2 of Advances in Pediatrics, published by the Interscience Publishers, an article entitled "Etiology of Congenital Malformation" by John Warkany of Cincinnati. If you wish to know more about this subject you will find his article to be very interesting reading.

At first it was thought that malformations were due chiefly to faulty genes and the occurrence of malformations was explained by Mendel's law of inheritance. More recently it has been demonstrated that environmental changes acting on the early embryo will produce deformities as has just been brought out by Dr. Mullen's paper.

It seems that congenital defects may be due either to heredity based on faulty genes or on abnormal environmental conditions acting on the development of the embryo. Which of these two conditions produces a deformity is difficult to determine in many cases. However, it is important for the patient that the physician knows which of these two factors has brought about the abnormality for the former is transmitted to subsequent offspring while the latter is not.

Avoidance of etiological factors can be carried out provided the physician recognizes these factors which have precipitated malformations and sees that the patient is protected against them. Prescribing a balanced diet, protecting the pregnant mother from actinic rays, infectious diseases, etc., during the early months of pregnancy will tend to eliminate congenital malformations. Where the factor appears to be genetic, birth control can be advocated.

Much has appeared in literature about rubella being the cause of congenital abnormalities. It might be wondered why rubella, being one of the mildest of our communicable diseases, should be credited for producing eye and heart changes while the severer of the virus diseases do not as frequently. This may be explained by the fact that the severer diseases will bring about the death of the embryo while a much milder disease is not sufficient to cause death but will bring about minor disturbances in development.

It is hard to convince one that rubella is the culprit as frequently as described in literature, for most of the authors assume the mother had rubella because she had a rash months previous, making a diagnosis through a non-scientific approach.

Experience with rubella convinces one that at times rubella is one of the hardest diagnoses of which to be certain. Even Holt's textbook stated that the diagnosis of rubella is so difficult to make that one should not make the diagnosis unless an epidemic is present. Yet some of these authors have made the diagnosis only on hearsay, or history of rash.

A physician has said that if a pregnant mother during the first three months of pregnancy has rubella she should be aborted. Another states that all young girls should be exposed to rubella when young so they will not be able to contract the disease when pregnant.

Exposure to rubella does not guarantee getting the disease. It is quite possible that more do not get the disease than do when exposed to it. Failure to get the disease at one exposure does not prevent one from getting it at another.

If a pregnant mother, during the early months, is exposed to rubella, one is certainly justified in giving convalescent serum obtained from an individual who has just convalesced from rubella. This should prevent her from contracting the disease. If not available, immune globulin can be tried. There is certainly nothing to lose by such therapy and a great deal to gain if the patient does not develop rubella.

DR. CLARENCE PORTER JONES, JR., Newport News: What is Dr. Mullen's position in the case of measles at

six weeks of pregnancy? Would he recommend therapeutic abortion, or not?

DR. W. AMBROSE MCGEE, Richmond: May I say a word? I cannot believe that German measles is half as bad as the literature says when there are so many cases of German measles and so few cases of cataract, if you are going to use that as an illustration of the defects, and of deaf-mutism. I have seen quite a few cases given immune globulin who did not develop these defects. I have seen a few mothers whose physicians said they had German measles, and their children did not have any trouble like cataracts or deaf-mutism later.

DR. MULLEN, closing discussion: In answer to Dr. Jones' question, I would recommend therapeutic abortion in the case of maternal German measles at six weeks of pregnancy.

I think it would be advisable to recommend that female children be exposed to German measles before the age of puberty.

CORRESPONDENCE

British Medicine.

To the Editor:

Dr. R. M. B. McKenna of London, whom you met and so kindly brought to my house two years ago, writes me in reply to a question as follows:

"The State Medical Service is getting slowly underway, and is causing many grievous hardships, especially to the country practitioner, who spends much time travelling from place to place and consequently cannot claim for as much money on a per capita basis as other more fortunately placed colleagues in the towns.

"The profession has had a considerable shock because of the number of middle class and upper class patients who were expected to stay on the private list but who have elected to be treated under the State regime. In most cases 97% of the patients have gone in for the State Service. This, of course, is an indication of the effect of long continued taxation which has made the average householder feel that if he has to find and contribute for the state scheme a sum of 8/—a week he might as well get his money back. I do not think that I can blame him. Most of the consultants up to date have found that their private patients will come along fairly satisfactorily because these cases do not want to go to the hospital, but doubtless in time this state of affairs will settle down. Meanwhile at the hospital we are full to the brim with out-patients who come even to get certificates for wigs! I do hope that you avoid all this trouble in the States."

I thought this might be of value to you in the efforts you are making.

Richmond, Va.

THOMAS W. MURRELL, M.D.

January 17, 1949

EDITOR'S NOTE: Dr. McKenna was a general in charge of dermatology in the British Army.

PUBLIC HEALTH

L. J. ROPER, M.D.,

State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for December 1948, as compared with the same month in 1947, and for the period of January through December 1948, compared with the same period in 1947, is as follows:

	Dec. 1948	Dec. 1947	Jan.-Dec. 1948	Jan.-Dec. 1947
Typhoid and paratyphoid	10	4	136	164
Diarrhea and dysentery	275	112	4,494	4,921
Measles	1,251	339	7,749	8,000
Scarlet fever	92	132	899	1,316
Diphtheria	36	46	265	273
Poliomyelitis	7	1	569	173
Meningitis	7	6	91	101
Undulant fever	8	2	82	74
Rocky Mountain spotted fever	0	0	64	67
Tularemia	7	10	58	60

THE CENTENARY OF PUBLIC HEALTH*

1948 marked the centenary of the public health movement launched in England in 1848. From small beginnings have come developments in sanitary and hygienic services that have made life safer and happier throughout the world. It is paradoxical that while the century has experienced two world wars unparalleled in their destructiveness, it has also seen unparalleled achievements in public health and medical advancement.

It is significant to compare mortality figures in Massachusetts 1856-65 (the earliest reliable data in the United States) with those for 1945:

The death rate from all causes reduced 32 per cent

Infant mortality reduced 70 per cent

Mortality from typhoid fever and certain other communicable diseases virtually eliminated

Mortality from tuberculosis lowered from 450 per 100,000 to less than 40 per 100,000

Life expectancy in Massachusetts in 1850 for a male at birth was 38.3 years, in 1940 it was 63.3. In white females the corresponding increase was from 40.5 to 67.6 years.

The decline in maternal deaths has been particularly marked in the past two decades. The rate in 1947, fifteen deaths per ten thousand live births, is the lowest on record. There are a dozen states in which fewer than ten puerperal deaths occur for each ten thousand live births registered. Some of the factors responsible are prenatal care, increased number of hospital deliveries, the sulfa drugs, penicillin and blood transfusions.

It is not the purpose of this recital of achievements during the past century to encourage pride and self-sufficiency. Too many problems remain unsolved for the medical profession to rest on its laurels. Among the unsolved problems are cancer, the increase of mental derangements, the lack of epidemiological knowledge and therefore effective control of poliomyelitis, the prevention and treatment of cardio-vascular lesions, accidents in the home, on the job or from motor cars, and the underlying conditions leading to the rising incidence of suicides, homicides and alcoholism.

We can only hope and work toward the end that the century before us may see as much progress as the one that ends.

*Source: A paper presented by Dr. Louis I. Dublin before the A.P.H.A., November 9, 1948.

MEDICAL SOCIETY OF VIRGINIA
REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

The Interim Session of the House of Delegates of the American Medical Association was held in St. Louis November 30—December 1, 1948. In accordance with the method of procedure previously adopted, each state has the privilege of nominating a candidate for the award for exceptional service to a general practitioner. Of the candidates nominated from twenty-three states, three were selected by the Board of Trustees and presented to the House of Delegates for final choice. Dr. W. L. Pressley, of Due West, South Carolina, was chosen by the House and received the award. Dr. Pressley is a native of South Carolina but has many friends and acquaintances in Virginia, having played professional base ball in the Virginia League before and after graduating in medicine, and having served as intern and resident in the Jefferson Hospital at Roanoke, 1912-1915.

For the first time in the history of the Association, a medal and citation were awarded by the House of Delegates to a distinguished layman in recognition of his services to American Medicine. The recipient of this award was Father Alphonse Mary Schwitalla, Dean of the School of Medicine of St. Louis University, and widely known for his outstanding contributions to hospitals, medical education and nursing.

The question of the promotion of a national insurance company to supplement on a nationwide basis the coverage now offered locally by Blue Cross and Blue Shield plans again came up for discussion. Mature consideration had already been given this matter by the Council on Medical Service whose adverse report had been furnished each delegate. Nevertheless, at a three hour hearing before the Reference Committee on Medical Service and Prepayment Insurance Plans, the subject was warmly debated by able speakers on both sides. That committee recommended against the formation of a nationwide insurance company and the recommendation was adopted by the House of Delegates.

Undoubtedly the most conspicuous action taken by the House of Delegates was the decision to assess each member of the Association twenty-five dollars to finance an educational program. It has become abundantly evident that the present administration, through the office of the Federal Security Administration is waging an active campaign in the cause of compulsory health insurance. A stream of propaganda has flowed from Washington belittling the accomplishments of medicine in the past, exaggerating the lack of medical care throughout the country at present, and exalting the preposterous claims of those who advocate free health coverage to all the people at the expense and under the control of the Federal Government. The American Medical Association has been and is unalterably opposed to Federal Medicine, not only on account of the enormous expense involved, but because it would result in an inferior type of medical care for the American people. It is, therefore, deemed necessary at this time to exert every effort to inform the people as to what has been done up to the present time by a free medical profession, of what may be done through voluntary prepayment plans, and particularly as to the fallacies inherent in socialized medicine. These will be the objectives of the educational program to be supported by members of the American Medical Association.

To plan and supervise the important educational campaign, a special committee to be known as a "Coordinating Committee for the Protection of the People's Health" was formed. This committee consists of four members from the Board of Trustees, of whom Dr. Walter B. Martin is one, and three from the House of Delegates.

J. MORRISON HUTCHESON, M.D.
H. B. MULHOLLAND, M.D.
Delegates.

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

President—MRS. R. M. REYNOLDS, Norfolk
President-Elect—MRS. C. E. HOLDERBY, Hilton Village
Recording Secretary—MRS. T. S. CHALKLEY, Richmond
Corresponding Secretary—MRS. CHARLES LUPTON, Norfolk
Treasurer—MRS. REUBEN SIMMS, Richmond
Parliamentarian—MRS. H. W. ROGERS, Norfolk
Historian—MRS. M. H. HARRIS, West Point

Public Relations Conference.

The Roof Garden of the John Marshall Hotel was the scene of a very interesting meeting on Saturday, January 15th, when an enthusiastic group of men and women gathered at ten o'clock to hear discussions from many distinguished speakers on The Story Behind the Campaign for Socialized Medicine.

This meeting was arranged by the Public Relations Department of the Medical Society of Virginia, under the leadership of Mr. Henry S. Johnson, Director. He sent invitations to the officers of the Woman's Auxiliary to the Medical Society and to each local group inviting them to this meeting and also to lunch. The meeting was called to order by Mr. Johnson, who presided. A large group of women responded. Our President, Mrs. Reynolds of Norfolk, was presented to the Society and its guests. She thanked the Society for the gracious invitation and in well chosen words offered the services of the Auxiliary in any way they wished to use us in the fight against socialized medicine. Many interesting and instructive plans were unfolded to us as a basis for our usefulness in this fight.

Drs. Emmett, Roper and Mulholland, who compose the committee on Public Relations, presented many helpful ways in which we might serve in this fight, viz., in our clubs, our Parent-Teacher meetings, as well as our auxiliary—in other words, never to lose an opportunity to give voice to the false philosophy of this movement in all our contacts with people. We can tell what has been done in the fight against tuberculosis and all the many diseases that have killed our people and what is being done now to combat cancer and heart disease under our present system.

After the delightful luncheon, the Auxiliary was invited to a room with Dr. Rucker, President of the Medical Society of Virginia, and members of the Public Relations Committee, where we were given the opportunity to ask questions. After these were answered, we returned to the Roof Garden, where we heard the two main speeches of the day and which were broadcast on WRVA. The first speech was by Mr. Lawrence Sullivan, Washington reporter and author of "The Case Against Socialized Medicine". He called the program "something which the Communists are trying to put over on the people". Mr. Sullivan also declared that England has felt a decline in professional standards since the start of the program last year and added that the worst of all is the utter disappearance of the personal relationship between physician and patient.

The next speaker, United State Senator A. Willis Robertson, was introduced by Mr. J. Vaughan Gary, who commented that he believes in the free enterprise system and that the system should be preserved for the professions as well as for business.

We were convinced socialized medicine is not what is best for our people. It behooves us as an Auxiliary and as workers in all other organizations for the good of our doctors and our American people to educate the public against this frightful movement toward Socialized Medicine and resolve as never before that with a big, hard and united effort on our part—"It shall not pass".

ELLIE C. CAMPBELL (MRS. HAWES)

Leigh-Hodges-Wright Memorial

The Leigh-Hodges-Wright Memorial has been one of the chief projects of the Woman's Auxiliary to the Medical Society of Virginia for the past twelve years. At the annual meeting which was held in Staunton, in 1936, a recommendation made by Mrs. Fletcher J. Wright, who was at that time President of the State Auxiliary, that the expense of supporting a bed in one of our state tuberculosis sanatoria to be used by a physician, or a dependent member of a physician's family, was adopted. Members of the Advisory Council approved this with much interest.

At the next meeting of the State Auxiliary Board, a committee was appointed to make definite plans for this, and authority given this committee to decide upon all applications, and other affairs concerning this newly created fund, which has always been given voluntarily by the Auxiliary groups. Since then each Auxiliary has included this project in its budget, and sends contributions regularly for this fund.

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In 1938, it was voted at an annual meeting to adopt the name "Leigh-Hodges-Wright Memorial", in honor of the memory of these three physicians who had all served on the State Advisory Council.

During the first months after its beginning, the fund was used to aid the daughter of a retired doctor, who was a patient at the Blue Ridge Sanatorium. After her discharge, much satisfaction was found in helping a young man stay at the sanatorium who found it necessary to go there just before graduating in medicine at the University of Virginia. It was necessary for him to stay there for a number of years, but he finally regained his health sufficiently to allow him to graduate in medicine.

The next patient to use this fund has been discharged for some time, and is now on the medical staff at the Blue Ridge Sanatorium. One more patient since was "adopted", but was able to leave the sanatorium some months ago, though is still a patient at his home.

Both state sanatoria have been notified that the fund is now available when it is needed, and the committee is always ready to receive any recommendation for any one eligible, from any doctor, or others who may wish some one considered.

Until it is needed again, the committee asks each Auxiliary to continue its fine support, always with the hope that through this means, the Auxiliary will be prepared to meet the next emergency when one occurs.

MRS. FLETCHER J. WRIGHT
MRS. REUBEN F. SIMMS
MRS. JOSEPH BEAR
Committee

Richmond Auxiliary.

The Woman's Auxiliary to the Richmond Academy of Medicine met on December 17th, at the home of Mrs. Thomas Wheeldon, President, for a program of Christmas Music.

Mrs. Benjamin Sheppard sang selections from the "Messiah", accompanied by Mrs. Charles Romaine at the piano.

This was followed by group singing of Christmas Carols, with Mr. William Cook as pianist.

At the business meeting which followed members agreed to furnish four or five volunteers each day during the month of January to assist with the March of Dimes campaign, and also plan a "House Tour" in the spring for philanthropic purposes.

MRS. EDWARD SCOTT RAY

BOOK ANNOUNCEMENTS

Practice of Allergy. By WARREN T. VAUGHAN, M.D., Richmond, Virginia. Revised by J. HARVEY BLACK, M.D., Dallas, Texas. Second Edition. St. Louis, The C. V. Mosby Company. 1948. 1132 pages. 333 illustrations. Cloth. Price $15.00.

This excellently rewritten second edition, like the first, has been designed as a reference textbook for the allergist. New developments in the field of allergy during the past decade have made revision necessary. The work of revision interrupted by the untimely death of the original author was done by Dr. J. Harvey Black, a practicing allergist and pioneer. The book follows the same plan of presentation as the first edition and much of it is unchanged.

Major additions and revisions are: the concept of the "blocking antibody"; the present status of the histamine theory; the status of the newly discovered histamine antagonists; recent studies on vital capacity; revised and modified trial diets useful in food allergy; complete pollen information brought up to date by O. C. Durham, the authority on the subject; information on fungus infection with associated allergy; sensitizing abilities of the newer antibiotics.

As stated in the beginning, this is an excellent book. The publishers have used good paper and print and have bound it well. The illustrations are plentiful and useful. The bibliography covering 37 pages is complete and is appended at the end of the text. Foot-note references are omitted except in those instances where no information available in printed literature exists and then the source is listed as "Personal Communication".

No book is more suitable for daily use by the physician interested in treating allergic diseases. Enough attention is given in the descriptive chapters on testing, preparation of extracts, methods of hyposensitization, etc. to allow each phase to remain uncomplicated and to be understood. The reviewer commends it to both clinicians and scientists. The student of allergy will find in it much to satisfy an inquisitive mind. It cannot be recommended to anyone who wishes a hasty review.

This book because of its great detail, rather than in spite of it, makes it a valuable reference which will be found in every allergist's library and should be in every medical library.

L. I. FOX

EDITORIAL

The St. Louis Meeting of the American Medical Association

THE second interim session of the American Medical Association will go down in history as the $3,500,000 session. The House of Delegates unanimously voted to levy an extra assessment of $25.00 on the 140,000 members of the Association. The reason for this assessment is given in detail in an editorial in this issue by Dr. George Lull. The most frequent comment that we have heard is why was it not done sooner.

Many large business corporations such as the telephone company have kept up national advertisement even after they had no longer anything to sell. They found it good business to keep in the good graces of the public. American medicine has grown to be a multi-billion dollar business and should take some lessons from big business. We need the goodwill of the public just as much (or even more) than a telephone company who can not supply a would-be customer.

While the House of Delegates got all the lime light, the Scientific Assembly was very well worth while. It consisted of general lectures by well known authorities and of clinical presentations. The general lectures were held in the Municipal Auditorium. The clinical lectures were held in rooms partitioned off from the Exhibit Hall. The only criticism we have of the session is that these rooms were not made large enough. Most of the rooms were filled to capacity and many doctors were turned away.

Motion pictures were very popular but the television program attracted the most attention. This was a joint project of the Deans of the St. Louis University School of Medicine and the Washington University School of Medicine, sponsored by E. R. Squibb and Sons. The operative clinics and medical conferences were transferred from Firman Deslodge Hospital, St. Mary's Hospital and the Barnes Hospital to two large screens and a number of small ones in the Scientific Section of the Auditorium. About each screen were constantly as many as could have been accommodated in the clinics in the hospital. The various groups were seated and were comfortable and could hear and see perfectly.

The exhibits both scientific and commercial were of high quality. We were particularly struck with the debunking character of a number of them. There was an exhibit of the autonomic nervous system from the St. Louis University School of Medicine, that showed ganglion cells in the nerve root as well as in the ganglia—thus showing an even greater variation for what we consider normal structure of the autonomic nervous system. Another exhibit on the Wassermann reaction showed that as many as 42 diseases could give a false positive reaction. More disturbing still was the information that 30 per cent of the cases of untreated syphilis tend to become negative in several years, and that 10 to 20 per cent of cardio-vascular, osseous and late syphilis cases give a negative reaction—a good illustration of the necessity of tempering laboratory reports with clinical judgment. The Bureau of Investigation of the A. M. A. showed an excellent collection of apparatus used by quacks, from Perkins metallic tractors to radio endocrinators. The Library of the Washington University School of Medicine showed some of their wonderful collection of manuscripts and letters of William Beaumont.

The Association's General Practitioner Award went to Dr. W. L. Pressly of our good neighbor state, South Carolina. The presentation was made by Dr. Andrew C. Ivy who had made the preliminary investigation of German medical war crimes. Dr. Ivy stated that the system of state medicine in Germany was in part the cause of the deterioration in the quality of German medicine and of the medical atrocities.

XUM

It is to be regretted that so few Virginia doctors attended this meeting. Those who registered were: J. Morrison Hutcheson, Richmond; H. B. Mulholland, Charlottesville; Walter B. Martin, Norfolk; J. A. B. Lowry, Crewe, and M. P. Rucker, Richmond.

Medical Care

IN the current discussions upon medical care for all the people, we should clearly understand what is meant by medical care. In the first place, medical care may be administered by the private physician, surgeon or dentist, or by some foundation that is interested in a particular disease, such as The Infantile Paralysis Foundation, by a clinic (either private or public) or by the public health authorities (local, state or federal.) There are two aspects of all medical care, curative and preventive, but the proportion of these two aspects varies with the different fields of practice. If we arrange these fields like colors of a spectrum according to the proportion of preventive and curative care, they would be listed about as follows: to the left at the red end of the spectrum would be inspection of food; at the violet end would be the treatment of acute non-infectious diseases; in between we have milk inspection, public water supply, quarantine, malarial control, examination of school children, immunization, tuberculosis, venereal diseases, rheumatic fever, routine health examination, the care of the indigent, maternal and infant care, cancer, chronic diseases, and diabetes.

By its very nature the inspection of meat belongs to public health authorities 100 per cent. They alone have the necessary police power to make it effective. Whether it be done by the federal authorities or the local authorities depends upon whether or not the meat is shipped across a state line. The federal and local authorities are so well coordinated that this question is chiefly a matter of executive interest. What has been said of meat inspection is true of milk inspection. Public water supply belongs in the same category. The establishment of quarantine is a matter in which a private physician has no interest other than reporting of the infectious disease. Malarial control depends on the eradication of the mosquito which in turn is a definite sanitary engineering matter. Immunology is definitely a matter of preventive medicine. In actual practice most of the vaccination against small pox, diphtheria and children's diseases is done by pediatricians or in well baby clinics. Most of the anti-tetanic serum is administered by surgeons. Most vaccination against typhoid fever is done by health officers or health nurses. Other prophylactic practices, such as the administration of sulfadiazine as a preventive against hemolytic streptococcic infection of the throat, are in the experimental stage.

Inspection of school children is done by the school doctor and the school nurse, chiefly because the examination is done in the school and is comparatively simple. For the same reason industrial hygiene and minor accidents are the province of the plant physician. On the other hand, routine physical examinations are usually made by private physicians because the examination is more complicated, involving as it does pelvic examinations, urinalyses, and frequently cardiograms or x-ray examinations. Maternal and infant care is beginning to be looked upon as a public health field, principally because the average citizen does not think it worth what it costs.

The care of the tuberculous patient is a public health problem in so far as rendering the patient innocuous to others. The care of the patient belongs by right to the private physician. However, the cure takes so long and involves special hospitals, and for that reason the health authorities have taken over the entire care of most cases. This has worked out very well as tuberculosis which used to rank first as a cause of death

now ranks seventh. The same situation pertains in regard to venereal diseases except that modern treatment has reduced the time of the cure tremendously. As a matter of national defense in World War II, the United States Public Health Service took over the treatment of venereal diseases, both in the armed forces and in the civilian population. Nevertheless, in 1946 according to the Dean of the Harvard School of Public Health, gonorrhea was the second of the ten leading causes of illness and syphilis was the third, with more than a third of a million reported cases.

Rheumatic fever has a dual interest for a different reason. Children and young adults will almost certainly have crippling heart disease if they have recurring attacks of the disease or hemolytic streptococcic sore throat. The disease is chronic and the treatment may require weeks or years. These patients must be protected against sore throat and recurrences. They are no health hazard to others but they must be educated and taught a useful trade within the capacity of their hearts in order that they may become useful citizens. For that reason in communities where rheumatic fever is prevalent the treatment is becoming to be looked upon as a community project.

The care of the indigent is distinctly the province of curative medicine, but the providing of the facilities to take care of these folk when they are sick is a community problem. The ideal way, of course, would be for the patient to have the privilege of selecting his own doctor and for the doctor and the hospital, when necessary, to be paid by pre-paid insurance, the local community paying the pre-payment plan for this service.

Non-infectious chronic diseases, especially mental diseases, present problems similar to the care of the indigent. Early recognition will save tremendously in money and lives. This is true of mental diseases to some extent, but it is especially true of cancer. Campaigns for the early detection of cancer may well be considered the province of public health.

There is at present a great clamor for the Federal Government to take over the private practice of medicine. The only excuse for this is the very human weakness of people wanting to get something for nothing. This failing is the chief cause for the failure of state curative medicine. When the state provides "free" treatment and in addition, furnishes a cash bonus for being sick, the temptation is too much for most of us. The result is that doctors become overburdened with malingerers and trivial cases and have little time for the seriously ill. Instead of a spirit of mutual trust and confidence between the patient and his doctor which is so necessary for the best results, there soon develops an atmosphere of suspicion and distrust. The patient thinks that the doctor is not interested in him and the doctor suspects the patient of malingering. If President Truman is as interested as Mr. Ewart says he is in preventing unnecessary deaths and promoting the health of the people, and not in the pay roll deduction for compulsory health insurance, there are many things he can do with the present available resources. He could see that local health units are established in every county. Tuberculosis still kills more young adults than any other disease. In 1946 there were 118,000 new cases in the United States, and 50,000 deaths. These cases and deaths can be prevented. Theoretically, venereal diseases can be cured within a week's time. The elimination of syphilis and gonorrhea would be an incalculable benefit to the health of the nation, since it would remove the second and the third commonest diseases. The late sequela of these diseases add considerably to the mortality of the nation. The Government has already entered these fields and rightly so—why not complete this work? Accidents are among the ten leading causes of death. A little education here might be in order.

XUM

Birth Certificates

Every doctor in the state has recently received copies of the new birth and death certificates and a copy of the pertinent laws. Along with these was an appeal from Miss Estelle Marks, State Registrar of Vital Statistics, that the certificates be filled in with black, unfading ink. She makes an especial plea that a ball-point pen be *not* used. If you stop to think what happens to these certificates you will realize the reasonableness of this request. The original certificate goes first to the local registrar. A copy is made (sometimes by photographic process) and the original is sent to the State Registrar of Vital Statistics. Here again a copy is made and this is sent to the U. S. Census office. The State Registrar sends a notice of the birth certificate to the parents. This original certificate is always available at the office of the State Registrar of Vital Statistics for a photostatic copy. To fulfill its full purpose this certificate must be photogenic.

SOCIETIES

Virginia State Board of Medical Examiners.

The following were granted license to practice in Virginia at the December meeting of the Board:

Dr. Arnold Albert, Washington, D. C.
Dr. Samuel Allen Alexander, Washington, D. C.
Dr. Theodore C. Andrew, Norton.
Dr. Lewis Hamilton Armentrout, Richlands.
Dr. Jesse James Bates, South Boston.
Dr. William Jacob Beard, Boone Mill.
Dr. John Harmon Beverage, Nashville, Tenn.
Dr. Edward Bernard Blum, Woodhaven, N. Y.
Dr. Stephen Miles Bouton, Jr., Lynchburg.
Dr. Ferdinand D. Bradford, Jr., Hampton.
Dr. Stuart Thomas Bray, Richmond.
Dr. Billy Booth Brinkley, Bristol, Tenn.
Dr. Andrew Kimmins Butler, Newport News.
Dr. C. Willard Camalier, Jr., Chevy Chase, Md.
Dr. Alejandro F. Castro, Washington, D. C.
Dr. John Benjamin Charlton, Reedville.
Dr. Claire A. Christman, Arlington.
Dr. Edmund Eugene Christman, Waynesboro.
Dr. John Laurence Clare, Danville.
Dr. Rufus Stanley Courtney, Nashville, Tenn.
Dr. John Austin Craig, Charlottesville.
Dr. Charles Joseph Devine, Jr., Norfolk.
Dr. Frederick Baker Devitt, Kecoughtan.
Dr. Richey Floyd Dodds, Lynchburg.
Dr. Harold Seymour Farfel, Philadelphia, Pa.
Dr. Priscilla Lowell Foote, Purcellville.
Dr. Franklin Daniel Freda, Newark, N. J.
Dr. Charles Henry Goodykoontz, Jr., Bishop.
Dr. George Emerson Gwinn, Catawba.
Dr. Joseph McMurray Hester, Richmond.
Dr. Charles Bullard Hooker, Roanoke.
Dr. Thomas L. Hoyt, Waynesboro.
Dr. Charles Brock Hughes, Jr., Wytheville.
Dr. William Wyse Huntress, Clifton Forge.
Dr. James Louis Keating, Falls Church.
Dr. John Winston King, Norfolk.
Dr. John Gregory Kroll, Charlottesville.
Dr. Mark Hummer Lepper, Alexandria.
Dr. Seymour Lifschutz, Alexandria.
Dr. Filas Jerome Little, Jr., Galax.
Dr. Lawrence W. Malin, Wytheville.
Dr. Robert Paul Meyers, Richmond.
Dr. Benedict Nagler, Framingham, Mass.
Dr. Keith Millner Oliver, Purcellville.
Dr. Charles W. Ordman, Washington, D. C.
Dr. William Hubert Orsinger, Lorton.
Dr. Woodbury Perkins, Charlottesville.
Dr. Francis Walthour Porro, Roanoke.
Dr. Henry Rappaport, Arlington.
Dr. Frank Walker Reynolds, Richmond.
Dr. William Lamar Roberson, Norfolk.
Dr. Paul Ward Robinett, Richmond.
Dr. Milton Bernard Rubin, Alexandria.
Dr. Hugo Anthony Sacchet, Clifton Forge.
Dr. John Marshall Saunders, Arlington.
Dr. James Rolland Sayers, Dahlgren.
Dr. Harold John Schupbach, Roanoke.
Dr. Stephen Joseph Sheehy, Jr., Arlington.
Dr. John C. Sherburne, Falls Church.
Dr. Bennie C. Slaughter, Baltimore, Md.
Dr. Ernest G. Smith, Jr., Charlottesville.
Dr. William Crenshaw Smith, Waynesboro.
Dr. Jennings Bryan Spinks, Galax.
Dr. William Leete Stone, III, Arlington.
Dr. Morris Silverman, Washington, D. C.
Dr. Julian George Suhrer, Jr., St. Charles.
Dr. Paul B. Toms, Martinsville.
Dr. Ulysses Samuel Wharton, Washington, D. C.
Dr. Charles Stanley White, Jr., Washington, D. C.
Dr. Forrest Prettyman White, Norfolk.
Dr. Virgil Blackstone Williams, Virginia Beach.

Alexandria Medical Society.

At the regular meeting of this society on December the 9th, Dr. Monroe Romansky, assistant professor of medicine at George Washington Univer-

sity School of Medicine, spoke on latest advances in antibiotics. His talk was of a practical nature and, since Dr. Romansky is one of the foremost authorities in the world on this subject, the society felt most fortunate in having him.

Dr. A. J. Mourot and Dr. Ben C. Jones are president and secretary respectively.

The Tazewell County Medical Society,

At its regular meeting on November 18 in North Tazewell, elected the following officers for 1949: President, Dr. George D. Vermilya of Richlands; vice-president, Dr. A. M. Tiernan of Jewell Ridge; and secretary-treasurer, Dr. Mary Elizabeth Johnston, Tazewell. The retiring secretary, Dr. W. R. Strader of Richlands reports that the Society has completed a most successful year under the presidency of Dr. H. A. Porter of Boissevain.

Warwick County Medical Society.

The following have been elected officers of this society for 1949: President, Dr. George S. Grier, III; vice-president, Dr. Fred N. Thompson; secretary-treasurer, Dr. C. W. Beaven. All are of Newport News.

At the January 11 meeting, Dr. Walter B. Martin of Norfolk was guest speaker, his subject being Present Status of Government Controlled Medicine.

Arlington County Medical Society.

At the regular meeting of this Society held on December 16th, the following officers for 1949 were elected: President, Dr. John Hazel; vice-president, Dr. Robert Hood; and secretary-treasurer, Dr. John B. Leary.

The Loudoun County Medical Society,

At its January meeting, named the following new officers: President, Dr. A. C. Echols; and secretary-treasurer, Dr. Priscilla L. Foote. Both are of Purcellville. This Society has quarterly meetings in January, April, July and October.

Albemarle County Medical Society.

New officers for this Society are President, Dr. R. Gregory Magruder; vice-president, Dr. McLemore Birdsong; and secretary-treasurer, Dr. Thomas S. Edwards.

Prince Edward Medical Society.

This county, one of the group forming the Fourth District Medical Society, has an independent unit of which Dr. F. R. Crawford of Farmville is president, and Dr. John A. Graziani, also of Farmville, is secretary.

NEWS

1949 Meeting, Medical Society of Virginia.

It was decided by the Council to hold the 102nd meeting of the Society at the Chamberlin Hotel, Old Point Comfort, Fort Monroe, and dates are to be October 9 to 12. To avoid overlapping of business and scientific sessions far as possible, the Council further decided to have its annual meeting on Sunday afternoon, the 9th, the House of Delegates that evening, and to start the scientific sessions on Monday morning.

Members should make reservations as promptly as possible.

To Head Department of Medicine At University.

Dr. William Parson, assistant professor of clinical medicine at Tulane Medical School, and head of Section II of the Department of Internal Medicine at the Ochsner Clinic, has been appointed professor of medicine and head of that department at the University of Virginia, and will assume his duties there July 1, 1949. He received his degree in medicine from the College of Physicians and Surgeons of Columbia University, New York, in 1937.

Dr. H. B. Mulholland, who has been acting head of the department of internal medicine, will continue as professor of internal medicine at the University.

Dr. Joseph E. Barrett,

State Commissioner of Mental Hygiene and Hospitals has been appointed a member of the advisory committee on mental hospital service of the U. S. Public Health Service. This committee, appointed by the Surgeon-General, serves as a consulting and advisory agency on mental hospital standards and functions.

XUM

News from Department of Health.

Effective October 1, Dr. Fred C. Heath, Health Officer of the Giles-Montgomery-Radford Health District, and Dr. Mildred Esther Scott, Health Officer of the Rockingham-Harrisonburg Health Department, left for Johns Hopkins School of Hygiene and Public Health. They will be absent from duty until approximately July 1, 1949. Dr. George E. Waters was appointed as Health Officer of the Rockingham-Harrisonburg Department, effective January 3.

Dr. J. A. Fields resigned as Health Officer of the Halifax Health District, effective November 1, 1948.

Dr. R. M. Wilson has been appointed Health Officer of the Henrico County Health Department, effective as of December 27.

Married.

Dr. Claude C. Coleman and Mrs. Constance Gooding Cardozo, both of Richmond, December 31.

Dr. Alexander F. Robertson and Mrs. Frances Quarles Agnew, both of Staunton, January 1.

Beds To Be Added At McGuire VA Hospital.

It is announced that one hundred beds will be added to McGuire Veterans' Administration Hospital, Richmond, in the near future, these being placed in wards already in use. This will bring to 1,100 the total number of beds in the hospital. The increase has been authorized because of the heavy demand for hospitalization by veterans in this area, but cannot become effective until additional personnel can be obtained.

Medical College of Virgina News.

Dr. Eugene A. Stead, Jr., Professor of Medicine in the School of Medicine at Duke University gave the second Lewis T. Stoneburner, III, lecture in internal medicine at the college on January 14. Dr. Stead's subject was "The Role of the Kidney in Edema of Congestive Heart Failure".

The lectureship is sponsored by members of the 45th General Hospital and was established by them last year as a memorial to Captain Stoneburner, an honor graduate in medicine at the College in the class of 1937, who was killed in the recent war.

The College has renovated, enlarged and named one of its buildings, the Brown-Sequard Research Laboratory, in honor of Charles Eduard Brown-Sequard, a professor in the College in 1854 and 1855.

Dr. Brown-Sequard engaged in extensive research in physiology. The building which bears his name will be used as a center of research at the college.

Three members of the administrative staff of the college have been promoted as follows: Carl Parrish has been promoted from administrator of St. Philip and Dooley Hospitals to assistant director of the Hospital Division of the College, succeeding Dr. Margaret DuBois. R. H. Crytzer, formerly administrative assistant of the Outpatient Department, has been named to replace Mr. Parrish as administrator of St. Philip and Dooley Hospitals. C. B. Sanders, who has been manager of the bookstore, has been named Director of Purchasing, replacing Bruce Clark.

Chest Physicians.

The Virginia Chapter of the American College of Chest Physicians will meet at the Richmond Veterans Administration Hospital on March 1st, from 10 A. M. to 4 P. M. All members of the Medical Society of Virginia are invited to attend.

Dr. Edwin S. Wysor,

Class of 1944, University of Virginia, Department of Medicine, is now located at Mechanicsville where he is associated with Dr. Claude Kelly in general practice.

Birth.

Dr. and Mrs. Robert E. Paine announce the birth of a daughter, Emily Anne, November 18, 1948, at Norfolk General Hospital. Emily Anne is granddaughter of Dr. Andrew D. Parson of Richlands, and the great granddaughter of Dr. John Gibson Davis of Roanoke.

American Heart Association.

Dr. John W. Ferree has been named Director of the Public Health Division of the American Heart Association. He will direct the development of public health programs for the American Heart Association and will assist local heart associations in expanding and maintaining effective cardiac services in communities throughout the United States. He will supervise the association's field staff now engaged in community organization and program development.

The formation of additional affiliated heart associations and the expansion of community services comprise an important objective of the American Heart Association's 1949 National Campaign, from February 7 to 28. A total of $5,000,000 is being sought for a three-way program of research, education and community service.

XUM

Mary Washington Hospital Staff.

Dr. P. J. Nutter has been installed as president of the Mary Washington Hospital Staff, Fredericksburg, succeeding Dr. John L. Smoot. Dr. Claude A. Nunnally is the new secretary-treasurer.

Correction.

In the December issue of the *Monthly*, under an item "Virginia Doctors Wintering in Florida", we should have stated that Dr. and Mrs. S. E. Massey (and not "T. H.") have gone to New Smyrna Beach.

Dr. Leroy S. Pearce,

Recently of Lynchburg, is now at the University of Virginia where he has a fellowship in Pathology. He will be there for at least a year.

Dr. F. T. Buchanan,

Formerly of Bristol, is now serving on the surgical house staff of the University Hospital, Charlottesville. He was discharged from the Army in July 1948, with the rank of Captain and in May 1948 married Miss Marjorie Ann Haas of Akron, Ohio. They are making their home at the University Garden Apartments, Charlottesville.

Postgraduate Course On Diabetes.

The Frank E. Bunts Educational Institute and Cleveland Clinic will present a continuation course for physicians, March 17, 18, and 19, entirely devoted to the diagnosis and management of diabetes and its complications. Drs. Henry T. Ricketts of Chicago, John S. L. Browne of Montreal, and H. L. C. Wilkerson of the U. S. Public Health Service will be the out-of-town guest speakers. Dr. E. Perry McCullagh is director of the course. In addition to the regular faculty of the Institute, several prominent Cleveland physicians will give lectures.

Inquiries regarding the complete program and registration can be addressed to the Director of Education, Frank E. Bunts Educational Institute, 2020 East Ninety-third Street, Cleveland 6, Ohio.

News from Department of Medicine, University of Virginia.

On December 16, the Phi Beta Pi Medical Fraternity, under its Annual Cancer Lectureship, presented as guest speaker Dr. John J. Bittner, of the Division of Cancer Biology, Physiology Department, University of Minnesota, who spoke to the faculty and student body on the subject, "The Genesis of Mammary Cancer in Mice".

As guest speaker in a series of Lectures on Psychiatry, Dr. Wendell Muncie of Baltimore spoke to the faculty and student body December 16, on the subject of "The Psychobiological Approach to Personality Disorders".

On January 10, under the auspices of the Postgraduate Program for House Officers, Dr. James Gamble of the School of Medicine of Harvard University gave a lecture entitled "Electrolytes".

Dr. Joseph E. Barrett, State Commissioner of Mental Hygiene and Hospitals, was guest speaker in the series of lectures on psychiatry, on January 11. His subject was "Opportunities in the State Hospital System".

On January 13, Dr. Frank Strickler of Roanoke, presented a lecture on the subject of "Strephosymbolia", as one in the series of Lectures on Psychiatry.

On January 17, Dr. C. L. Gemmill, Professor of Pharmacology, spoke at the Long Island College of Medicine on the subject: "Enzyme Inhibition in Pharmacology"..

The group of residents, who trained under Dr. Tiffany Johns Williams during his tenure as Professor of Obstetrics & Gynecology at the University of Virginia from 1931 to 1947, have established a lectureship fund in memory of Dr. Williams. The initial Tiffany Johns Williams Annual Memorial Lecture will be given at the University on the night of April 8, by Dr. Nicholson J. Eastman, Obstetrician-in-Chief, Johns Hopkins Hospital.

Orientation Course In Allergy.

The American Academy of Allergy, in cooperation with the University of Georgia, will sponsor an orientation course in allergy from March 7 through March 11, 1949, at the University Medical School in Augusta, Georgia. This course is under the direction of Dr. Leo H. Criep, assisted by other Fellows of the American Academy of Allergy, and a distinguished faculty. It is for internists and general practitioners, dermatologists, rhinologists and nose and throat men, and will be practical and directly applicable to the practice of most physicians doing general medicine.

Enrollment is open to anyone interested and the fee is fifty dollars. Applications and inquiries should be addressed to the Executive Office of the Academy, 208 East Wisconsin Avenue, Milwaukee 2, Wisconsin.

XUM

Dr. L. C. S. Haynes,

Formerly of Mount Jackson, has accepted a position on the staff of the Newton D. Baker Veterans Center at Martinsburg, West Virginia.

Location Wanted.

Internist, 31, Board eligible, available July 1949, group or association; graduate University of Virginia; fellowship cardiology, residencies neurology and internal medicine; competent in electrocardiography; Alpha Omega Alpha; protestant; veteran; married; perfer East. Write "Internist", care *Virginia Medical Monthly,* 1200 East Clay Street, Richmond. (*Adv.*)

Help Wanted.

Laboratory and X-ray technicians, men or women, in State Mental Hospital. Apply to Granville L. Jones, M.D., Superintendent, Eastern State Hospital, Williamsburg, Virginia. (*Adv.*)

OBITUARIES

Dr. Hack Urquhart Stephenson,

Prominent Richmond physician, died January 20th. He was a native of Southampton County and seventy-six years of age. Dr. Stephenson graduated from the Medical College of Virginia in 1895 and practiced in Toano until 1922. He was for twenty-five years a surgeon for the Chesapeake and Ohio Railroad, was a member of the county board of supervisors for four years, and chairman of the board of directors of the Eastern State Hospital for fourteen years. Dr. Stephenson had always taken an active part in political life of the state, serving as chairman of the Democratic party for James City County for a number of years and was a member the Virginia General Assembly from 1910 to 1914. He was a member of the Virginia State Board of Medical Examiners for thirty-eight years, having retired in 1946. Since 1922 he had been medical advisor for the Industrial Commission of Virginia with offices in Richmond. Dr. Stephenson had been an active member of the Medical Society of Virginia for fifty years, having served for a number of years as chairman of the Legislative Committee and at the time of his death was chairman of the Committee on Industrial Health. His wife, two daughters and two sons survive him.

Dr. William Douglas Macon,

Retired physician of Charlottesville, died December 30th. He was seventy-nine years of age and a graduate in medicine of the University of Virginia in 1897. For twenty years, Dr. Macon was a member of the medical faculty of the University, resigning to devote his entire time to the practice of medicine. For several years he served as health officer of Charlottesville. Dr. Macon had been a member of the Medical Society of Virginia for forty-eight years and at the last meeting was among those awarded the Fifty Year Club certificate and made a Life Member. His wife and a daughter survive him.

Dr. Hugh S. Cumming,

Surgeon General of the United States Public Health Service for sixteen years, died at his home in Washington on December 20th, having been ill for more than a year. He was born in Hampton in 1869 and received his medical degree from the University of Virginia in 1893. Dr. Cumming was appointed assistant surgeon-general in 1898 and was named surgeon-general in 1920, retiring from that position in 1936. In recognition of his work he was decorated by half a dozen governments in Europe and Latin America and was the recipient of several honorary degrees as well as other important distinctions. Dr. Cumming had been a member of the Medical Society of Virginia for fifty-two years and was among those named a member of the Fifty Year Club at the recent meeting. His wife and two children survive him.

Dr. Walter H. Janney.

The death of Dr. Janney occurred on January 3, 1949. The following memorial was adopted by the Alexandria Medical Society:

Since God in His Divine Providence has seen fit to remove, from our midst, Dr. W. H. Janney, The Alexandria Medical Society at a meeting January 13, 1949, hereby expresses its regrets.

RESOLVED: That in the death of Dr. W. H. Janney we have lost a faithful member of many years, a man true to the ideals of his profession, a friendly soul ever ready to serve—one of deep sympathy for those of limited means, and ever rendering service and counsel to those who called upon him.

RESOLVED: That a copy of this resolution be spread on the minutes of The Society, a copy to his family, a copy to *The Alexandria Gazette,* and a copy to the VIRGINIA MEDICAL MONTHLY.

BEN C. JONES, JR., *Secretary.*